

OPERATING MANUAL

HEALTH AND SAFETY
GUIDANCE NOTES
MODEL: K5F



DATE: 2003/08/01

VERSION: 5

1. Operating safety guidelines	1-1
1.1 Operating safety precautions	1-1
1.2 Machine operators precautions	1-1
1.3 Warning signs and marks on the machine	1-2
2. Machine specifications	2-1
2.1 Specification	2-1
3. Names of machine parts	3-1
3.1 Headstock	3-2
3.2 Machine body	3-3
4. Position and noise level	4-1
4.1 Operator position and noise lever	4-1
4.2 Spindle noise detail	4-2
5. Lubrication	5-1
5.1 Headstock lubrication	5-1
5.2 Machine table lubrication	5-2
6. Instruction in operations	6-1
6.1 Head stock	6-1
6.1.1 Manual feed	6-1
6.1.2 Manual micro motion feed	6-1
6.1.3 Automatic feed	6-1
6.1.4 Headstock cross tilting	6-2
6.1.5 Speed change of spindle	6-3
6.1.6 Headstock tilting	6-4
6.2 Machine body operations	6-5
6.2.1 Ram movement and swiveling	6-5
6.2.2 Zero positioning of dial ring of table feed	6-6
6.2.3 Setting of sliding surfaces of work table, saddle and knee	6-6
7. Transport, unpacking and floor space	7-1
7.1 Methods of transport	7-1
7.2 Cautions for unpacking	7-2
7.3 Floor space	7-3
8. Precision alignment	8-1

9. Trouble shooting	9-1
9.1 Dismantling of motor cas showing	9-1
9.2 Replacement of belt	9-2
9.2.1 Replacement of speed change belt	9-2
9.2.2 Replacement of hi-lo speed change belt	9-3
10. Adjustment	10-1
10.1 Adjustment of backlash of leadscrew	10-1
10.1.1 Adjustment of cross leadscrew	10-1
10.1.2 Adjustment of backlash of longitudinal leadscrew	10-2
10.2 Adjustment of play between gibs	10-2
10.2.1 Adjustment of work table gibs	10-2
10.2.2 Adjustment of saddle gib	10-3
10.2.3 Adjustment of knee gib	10-4
10.2.4 Adjustment of ram gib	10-5
10.2.5 Adjustment of collect aligning screw	10-5
11. Maintenance	11-1
11.1 Daily maintenance	11-1
11.2 Monthly maintenance	11-1
11.3 Quarterly maintenance	11-1
12.Parts list	12-1
12.1 Head stock upside (1)	12-1
12.2 Head stock upside (2)	12-3
12.3 Head stock infrastructure (1)	12-5
12.4 Head stock infrastructure (2)	12-7
12.5 Head stock infrastructure (3)	12-9
12.6 Head stock infrastructure (4)	12-11
12.7 Column assembly	12-13
12.8 Knee assembly	12-15
12.9 Table, saddle assembly	12-17
12.10 Spindle guard (ce option)	12-19

1. OPERATING SAFETY GUIDELINES

1.1 OPERATING SAFETY PRECAUTIONS

- a. The operator must be a technician who is trained in the operation and familiar with the manual.
- b. Never lay anything on the working surfaces of the machine, where it may foul with rotating or moving parts.
- c. Do not touch or reach over moving or rotating machine parts.
- d. Ensure you know how to stop the machine before starting it.
- e. Do not operate the machine in excess of its rated capacity.
- f. Do not wear rings, watches, ties or loose sleeved clothing.
- g. Stop machine immediately anything unexpected happens.
- h. Do not cutting Mg metal.
- i. Always select the correct tool for the job.
- j. Do not run the machine unattended.
- k. Do not place hand or body in path of moving objects.
- l. Know the function of each and every control.
- m. Make sure power has been turned off when machine is unused for sometime.
- n. Be sure spindle is not running when using gauges on the machine.
- o. Never take depth of cuts beyond machine's capability.

1.2 MACHINE OPERATORS PRECAUTIONS

- a. The machine is to be started or operated by an authorized operator only.
- b. Immediate stop and repair are needed in case of troubles in operations.
- c. In installation, the machine shall be connected to earth.
- d. In stop motion, the feed lever shall be placed in the neutral position.
- e. The machine should be stopped during the inspection on the work pieces.
- f. In clamping, check and ensure if the work pieces are firmly vised.
- g. The spindle must be kept clean and lubricated all the time.
- h. Do not place any tools on the work table to maintain its surface preciseness and smoothness.
- i. Prior to cutting, wait until the spindle is running steadily after the motor is started.
- j. Use brush to clean off the iron fragments.



WARNING

IMPROPER INSTALLATION OR OPERATION OF THIS MOTOR MAY CAUSE INJURY TO PERSONNEL OR MOTOR FAILURE. READ OPERATION INSTRUCTION.

MOTOR MUST BE INSTALLED AND GROUNDED PER LOCAL AND NATIONAL ELECTRICAL CODES. TO REDUCE POTENTIAL OF ELECTRIC SHOCKS. DISCONNECT ALL POWER SOURCES BEFORE INITIATING AND MAINTENANCE OR REPAIRS.

KEEP FINGERS AND FOREIGN OBJECTS AWAY FROM VENTILATION AND OTHER OPENINGS. KEEP AIR PASSAGES CLEAR OF EYEBOLTS OR LIFTING HOOKS. WHEN SUPPLIED ARE INTENDED FOR LIFTING THE PRODUCTS ONLY. DON'T LIFT ADDITIONAL WEIGHT.

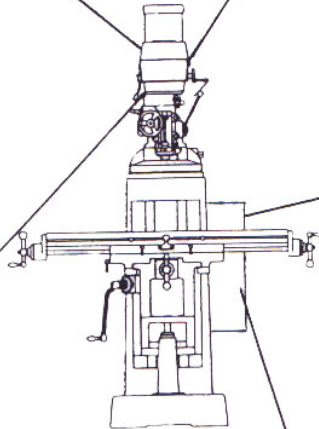


Fig.1-1

⚠ DANGER	
<p>1. High voltage inside. it may make people being killed.</p> <p>2. Please turn off the power before to do any service work.</p> <p>3. The cabinet can be opened only by qualified personnel.</p>	

⚠ DANGER	Entanglement Hazard
	Keep your hands away from the running tooling.



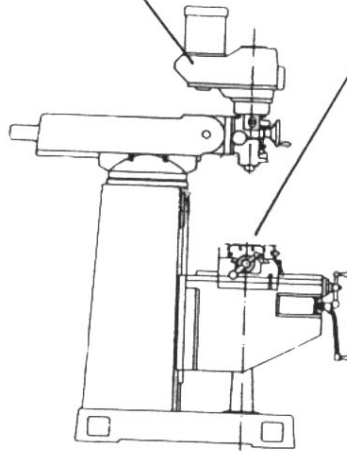
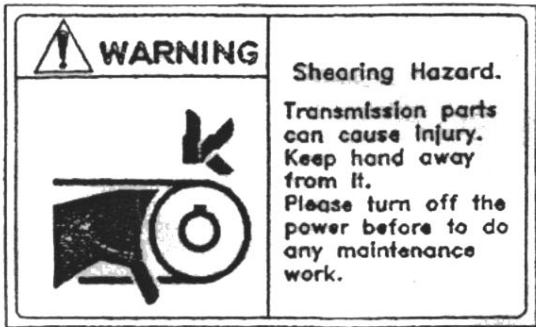
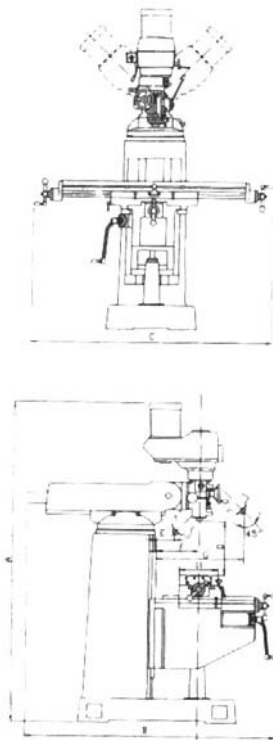


Fig1-2

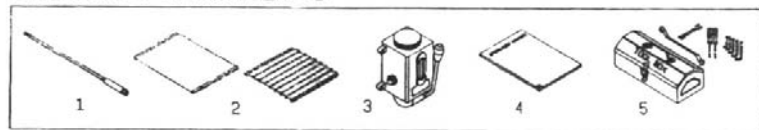
2.1 SPECIFICATION

	K5F
WORK TABLE	280 x 1470mm (11"x58")
X AXIS TRAVEL	1090mm (43")
Y AXIS TRAVEL	395mm (15 - 1/2")
Z AXIS TRAVEL	500mm (19 - 11/16")
QUILL DIAMETER	Ø100mm
SPINDLE TAPER	N.S.T. #40
SPINDLE MOTOR	5HP

OVERALL DIMENSION

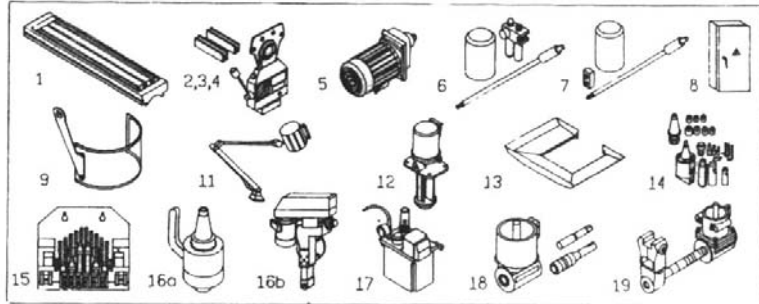


STANDARD EQUIPMENTS



1. DRAW BAR
2. SLIDEWAYS COVER
3. ONE SHOT LUBRICATION
4. OPERATION MANUAL
5. TOOLS & TOOL BOX

OPTIONAL ACCESSORIES



1. LARGER WORK TABLE
2. X AXIS POWER FEED
3. Y AXIS POWER FEED
4. Z AXIS POWER FEED
5. Z AXIS RAPID FEED
6. PNEUMATIC DRAW BAR
7. ELECTRIC DRAW BAR
8. ELECTRIC BOX
9. ELECTRIC MAIN SWITCH
11. HALOGEN WORK LIGHT
12. COOLANT SYSTEM
13. CHIP TRAY
14. MILLING CHUCK W/-COLLETS
15. CLAMPING KITS
16. a. QUICK CHANGE SLOTTING UNIT
b. SLOTTING UNIT
17. AUTO LUBRICATION SYSTEM
18. RIGHT ANGLE ATTACHMENT
19. HORIZONTAL MILLING ATTACHMENT

3. NAMES OF MACHINE PARTS

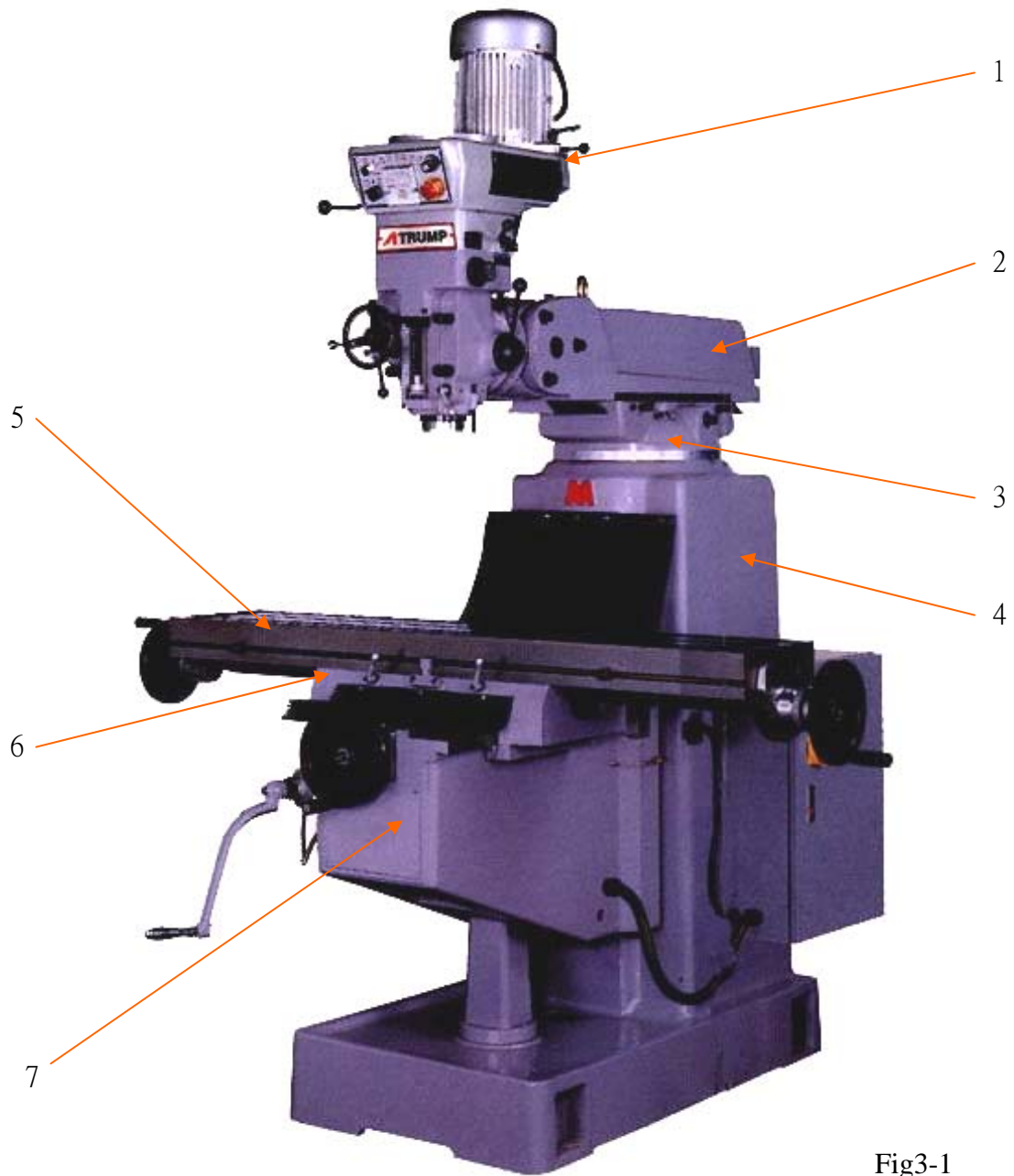


Fig3-1

1	Milling head stock
2	RAM
3	Turret
4	Column
5	Work table
6	Saddle
7	Knee

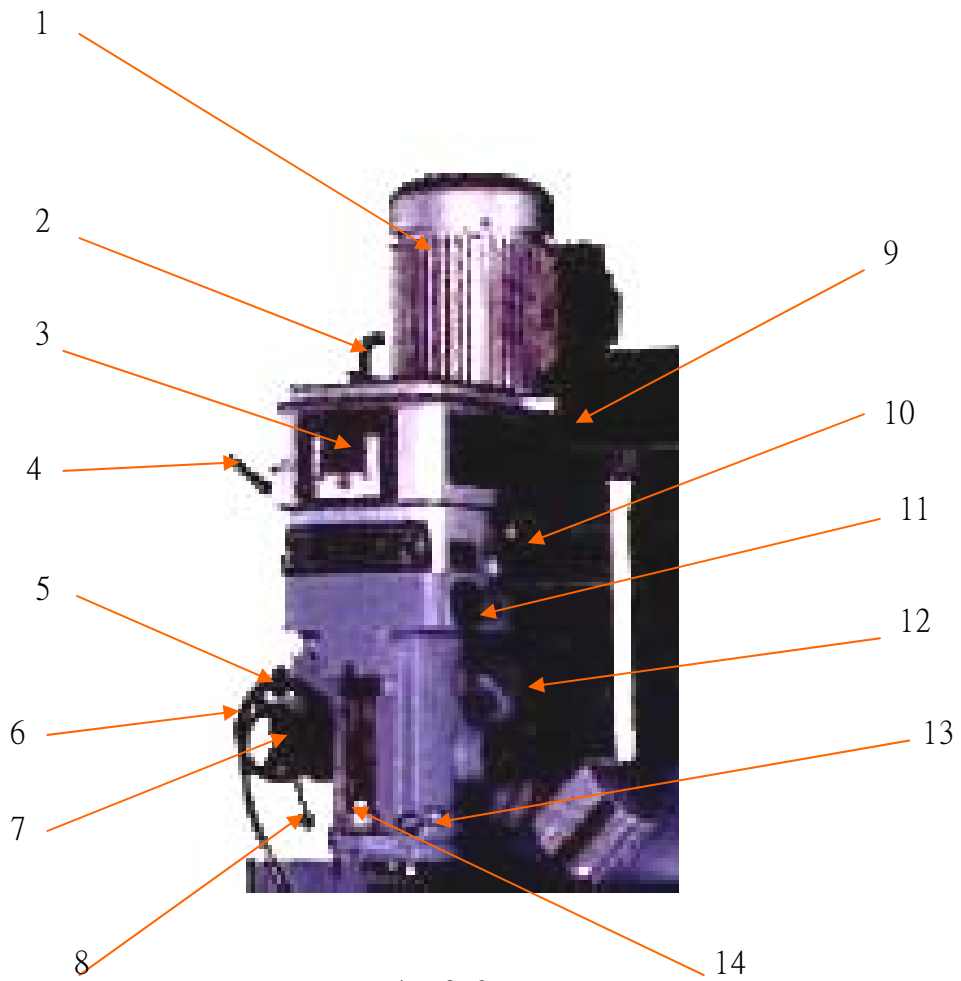


Fig.3-2

NO.	MAIN UNIT	NO.	MAIN UNIT
1	Spindle motor	8	Feed control lever
2	Motor locking handle	9	Motor locking lever
3	Spindle speed plate	10	Hi-low speed lever
4	Spindle locking handle	11	Change lever
5	Quill feed selector	12	Quill feed lever
6	Handle wheel	13	Quill lock handle
7	Feed reverse knob	14	Micrometer adjusting nut

(1) COLUMN, TURRET AND RAM

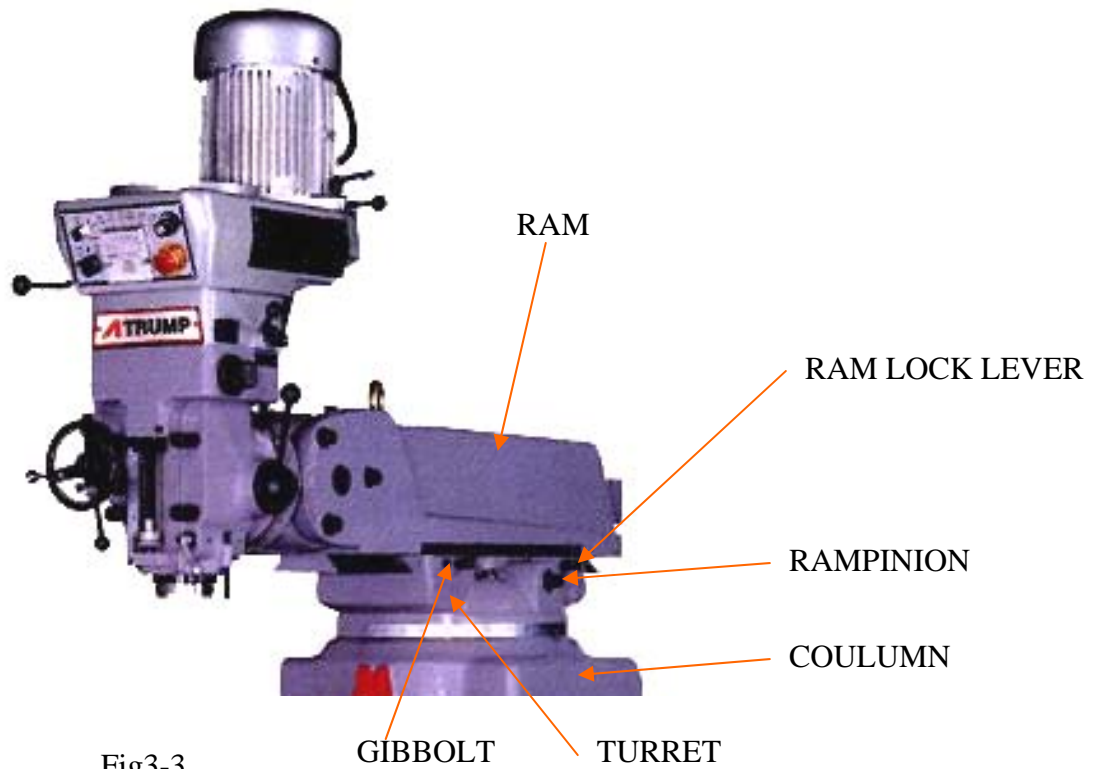


Fig3-3

(2) WORK TABLE, SADDLE AND KNEE

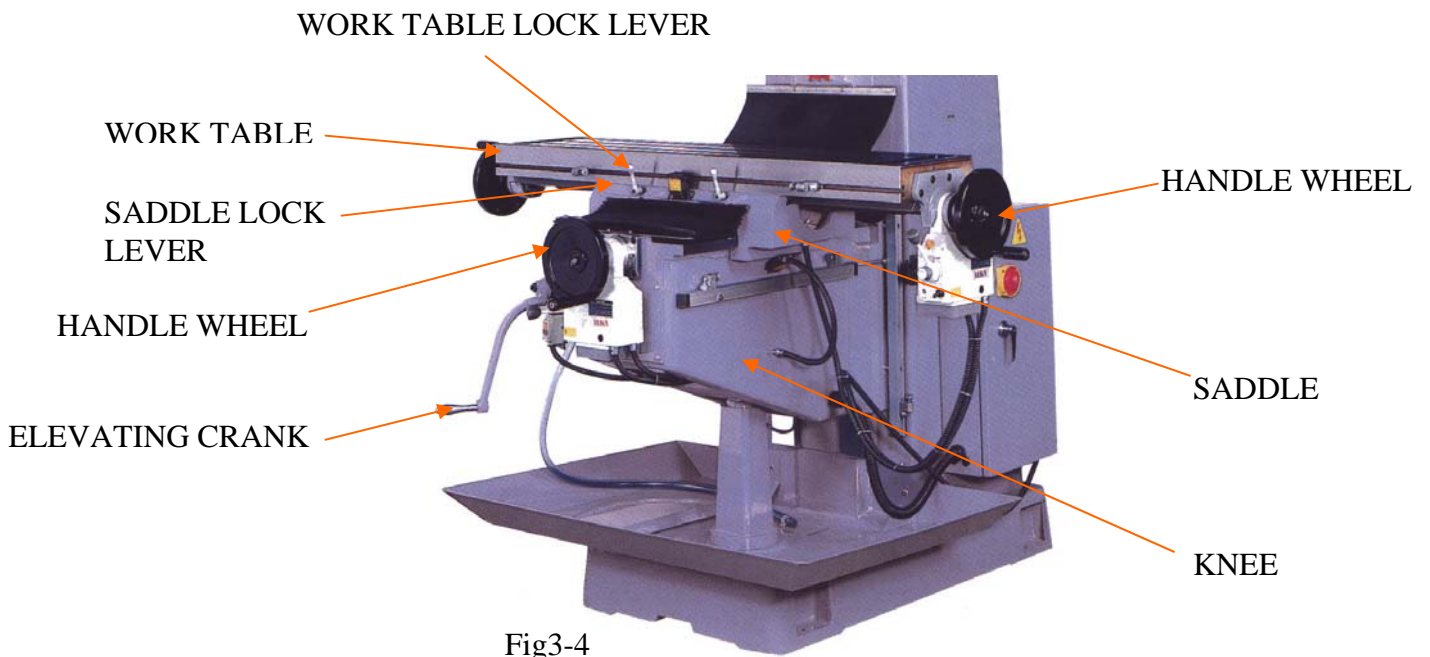


Fig3-4

4. POSITION AND NOISE LEVEL

4.1 OPERATOR POSITION AND NOISE LEVEL

Noise Level:
Less Than 82 dB

At a distance of 1 meter from the sun face of the machinery and at a height of 1.6 meter from floor.

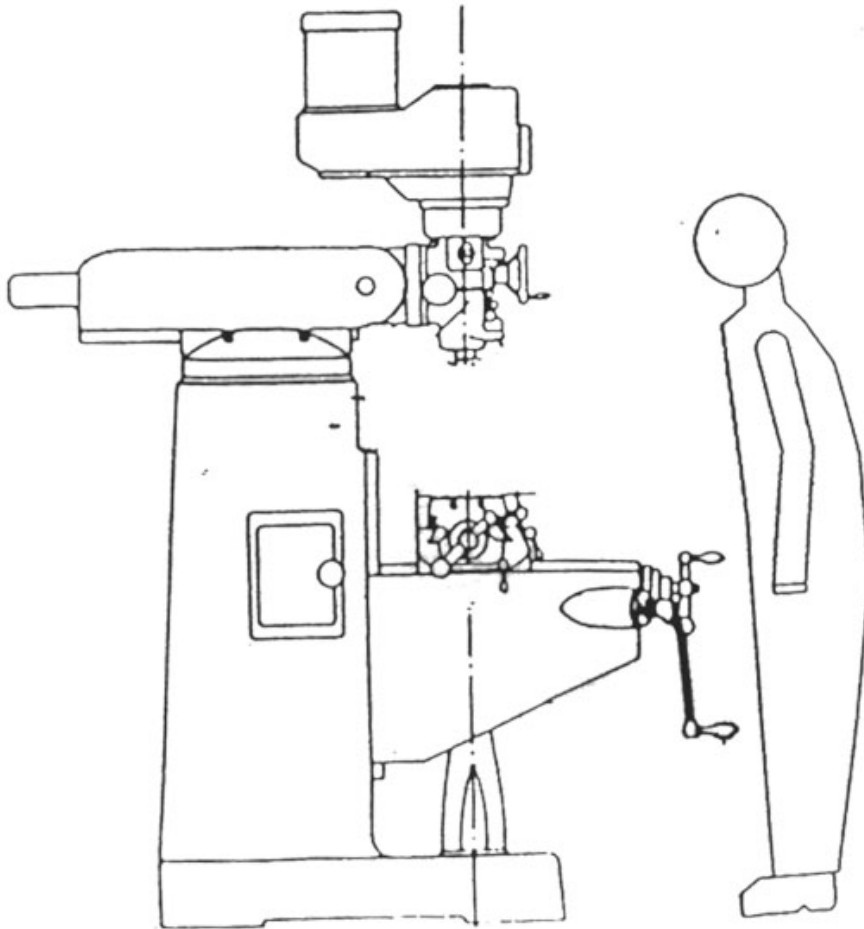


Fig4-1

Spindle Nose Detail

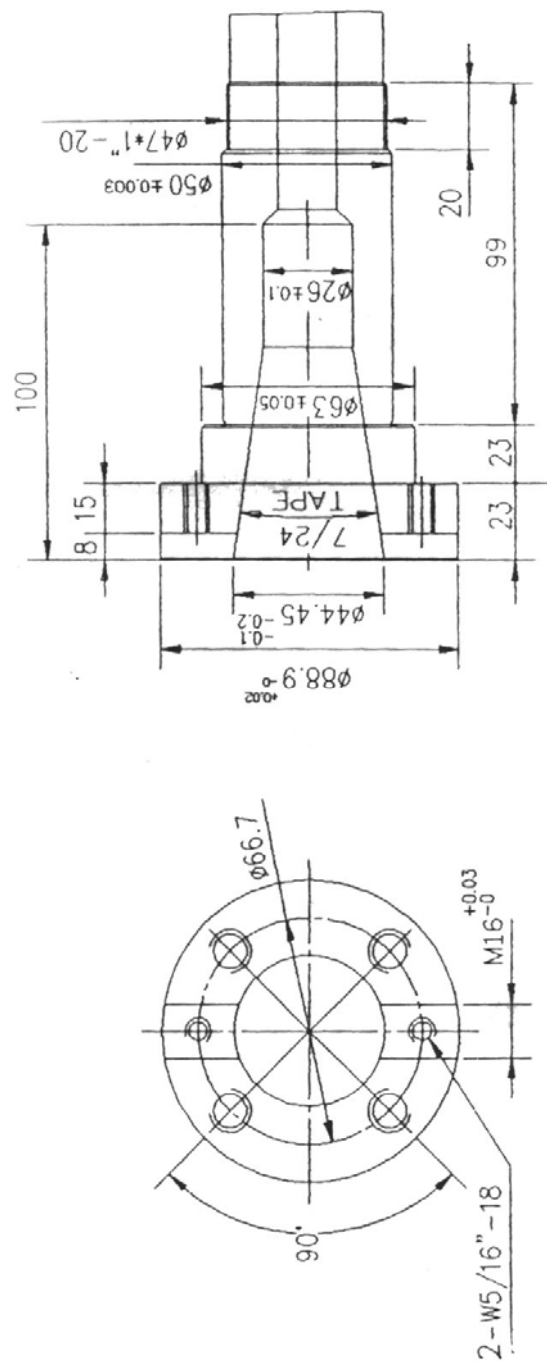


Fig4-2

5. LUBRICATION

5.1 HEADSTOCK LUBRICATION

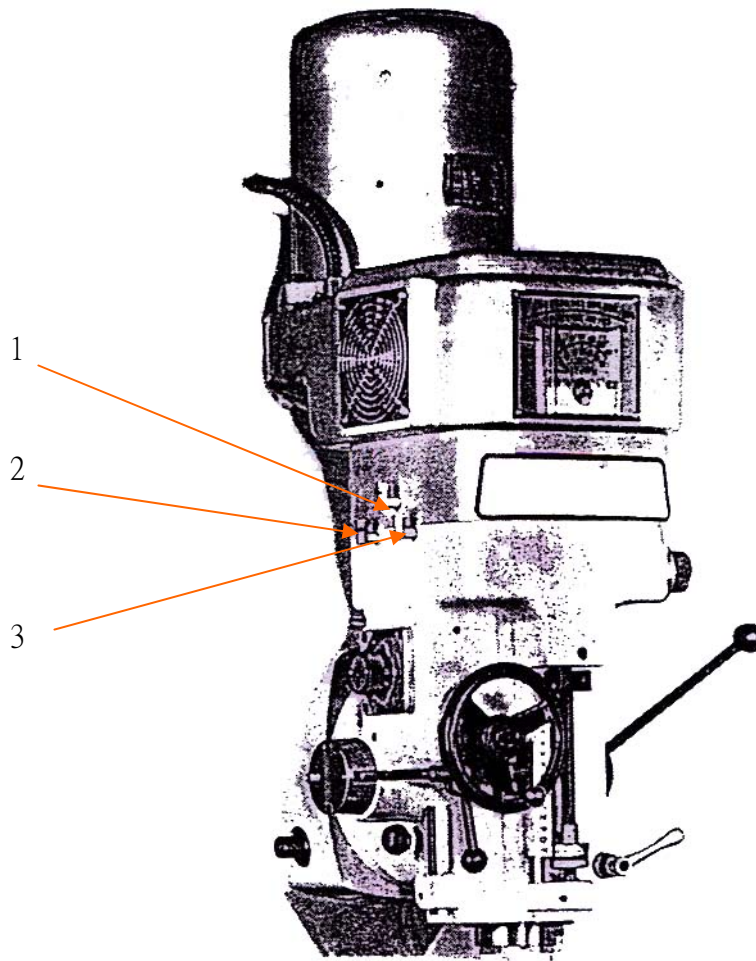


Fig.5-1

NO	LUBRICANTS	QTY.	TIME
1	KUO-KUANGR68 ESSO FEBIS K35	FULL	DAILY
2	KUO-KUANGR68 ESSO FEBIS K35	FULL	DAILY
3	KUO-KUANGR68 ESSO FEBIS K35	FULL	DAILY

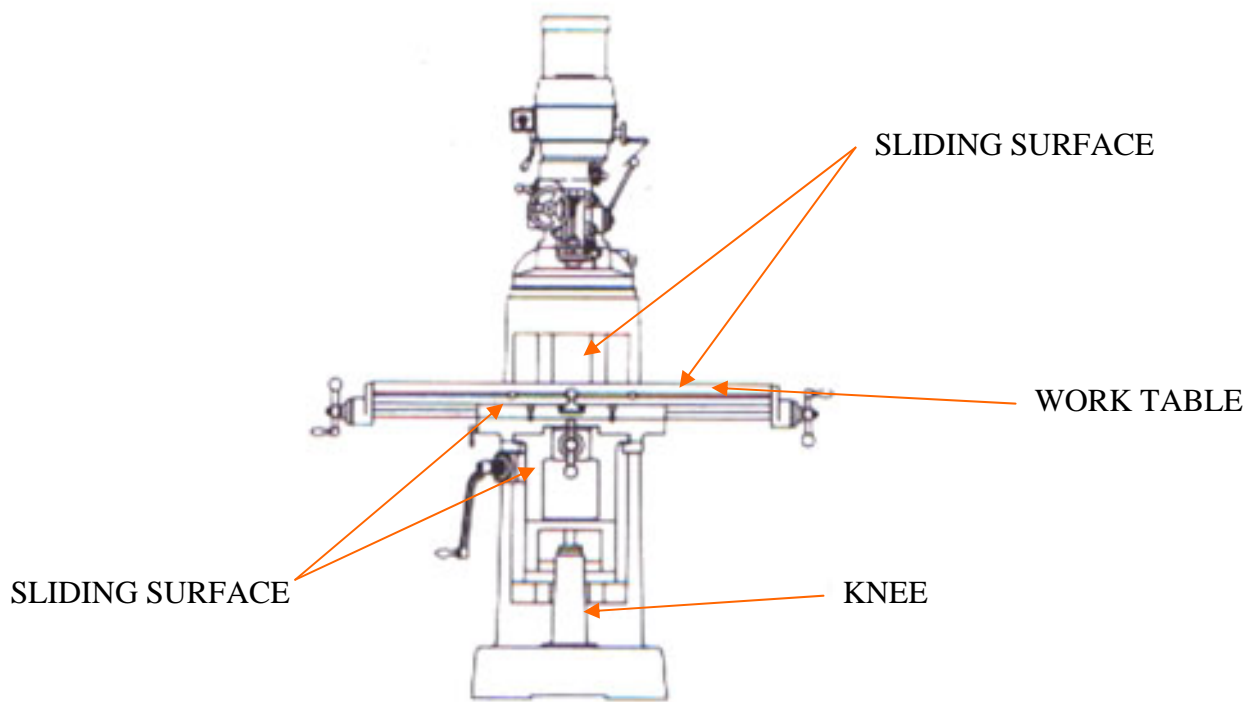


Fig5-2

POSITION:	LUBRICATION OF WORK TABLE, KNEE, SLIDING SURFACE AND LEADSCREWS MAY BE EFFECTUATED BY MEANS OF THE HAND CRANK PUMP ON THE LEFT SIDE OF KNEE.
METHOD:	3 TO 5 TIME DAILY BY PULLING TWICE EACH TIME.
LUBRICANT:	KUO KUANG R-68 GULFWAY 52 VACTRA 2 ESSO FBIS K-53 SHELL TONNA 33

6. INSTRUCTIONS IN OPERATIONS

6.1 HEAD STOCK

6.1.1 MANUAL FEED

The manual feed lever is installed on the right side of head stock, (vide Fig.6-1), The spindle will travel vertically when the lever is turn. An operator can freely take out the lever and install it again at the position deemed proper and it.

NOTE: In manual feed, the feed control handle must be placed at position (F) as shown in (Fig.6-1)

6.1.2 MANUAL MICRO MOTION FEED:

To effectuate the manual micro motion feed, the power feed transmission, engagement crank (J) (Fig.6-1) shall be placed at “OUT” position, and feed reverse knob (d); at the neutral position. Feed control lever (F) must be pull from (F1) to (F2). This is to engage the overload clutch. Turn the feed hand wheel (E) clockwise for quill downward feed, and vice-versa.

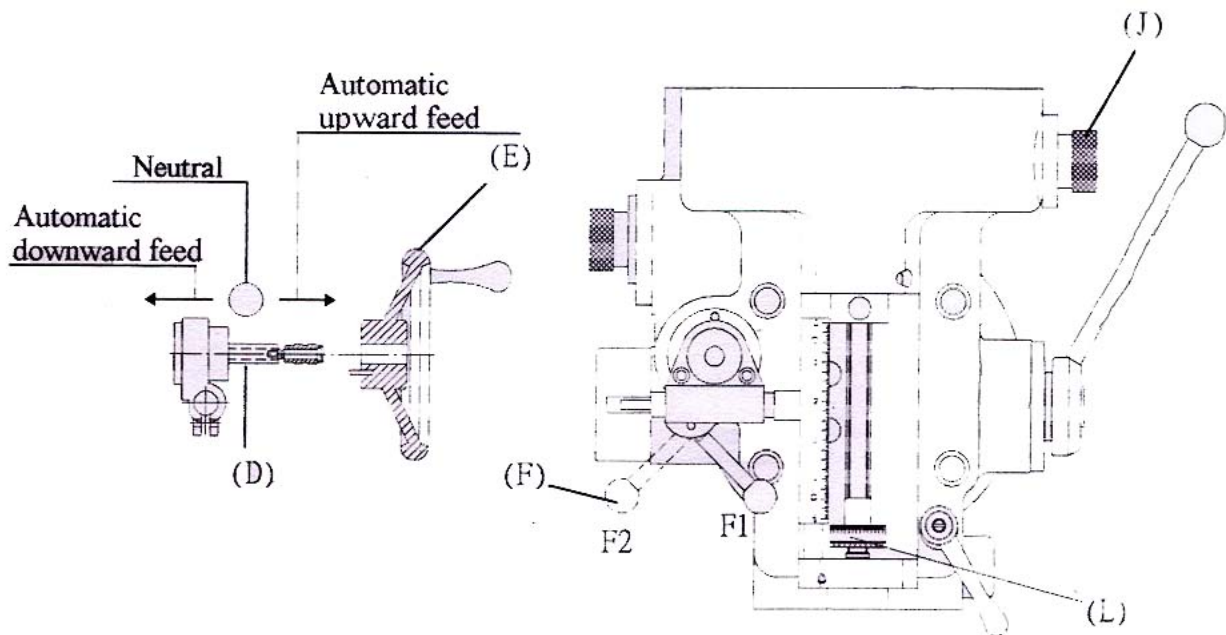


Fig.6-1

6.1.3 (AUTOMATIC FEED)

For automatic feeding; please take the following steps (vide Fig.6-1)

- (1) Loosen the quill lock (L)
- (2) Turn the power feed transmission engagement crank
- (3) Feed speed is in three stages. H, Land M. Selection may be made by quill feed selector.

6-1

- (4) Pull the feed control lever (F) from (F1) to (F2) position (Fig.6-2) to engage the overload clutch for automatic feed mechanism.
- (5) When the feed control lever knob (D) presser inward (FIG.6-1), it is for downward feed; and vice- versa: The middle position is neutral.

- (6) As shown in (Fig.6-2), the working depth may be set by micrometer adjustments nuts (K) (each graduation is 0.001" or 0.02mm) when the quill stop block (I) contacts the micrometer nut (K), the feed control lever (F) may simply jump from (F2) back to (F1) position owing to the connecting motion between the feed trip lever and feed trip plunger. This will disengage the overload clutch and stop the spindle feed.

- NOTE:** 1. Maximum drilling capacity in automatic feed is 3/8" or 10mm.
 2. The power feed transmission engagement crank (J) (Fig.6-1)
 3. Shall be placed at "out" position when the automatic feed is not in operation.
 Do not move the power feed transmission engagement crank when the spindle is in revolution.

spindle

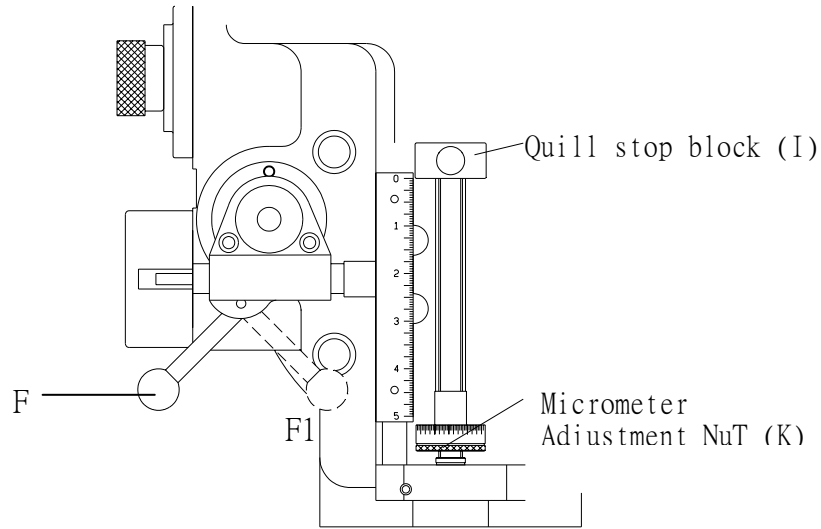


Fig.6-2

6.1.4 HEADSTOCK CROSS TILTING

Loosen evenly the four nuts (R) and turn the worm shaft (S) until the desired angle is secured.

Then lock up the lock nuts evenly.

NOTE: Do not loosen the lock nuts (R) totally during the adjustment.

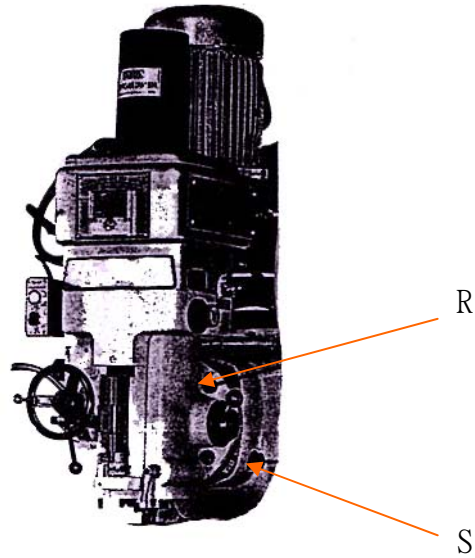


Fig.6-3

6.1.5 SPEED CHANGE OF SPINDLE

Change of high and low speeds:

The speed change may be effectuated by the chosen high and low speed lever (FIG.6-1(J)). When (J) is engaged in the right front, it is for the high speed and the spindle rotate as high as 260 or 3950 rpm. The neutral lever position is in the right down.

H	64	130	192	256	320	395
	26	51	77	102	128	153
L	11	21	32	42	53	65
	4	8	13	17	21	26

- NOTE:** a. The spindle must be motionless completely during the speed change.
 b. To shift the high speed into the low one, the spindle must be slightly turned to make it easier for the back row gear to engage.

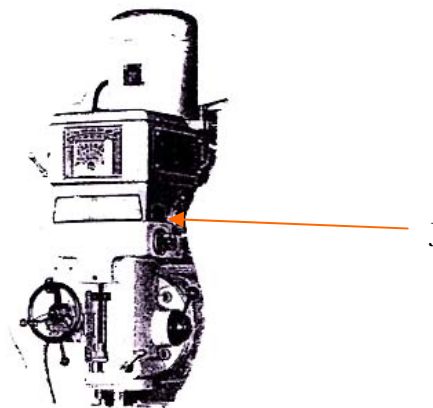


Fig.6-4

6.1.6 HEADSTOCK TILTING

Cross tilting (Fig6-5:)

Loosen evenly the four lock nuts and turn the worm shaft (S) until the desired angle is secured. Then lock up the lock nuts evenly.

NOTE :a. If the adjustment angle is larger than 30 degrees, the safety pin (T) must be drawn out. there is no need to pull the pin out for any angle less than that.

b. Do not loosen the lock nuts (R) totally during the adjustment.

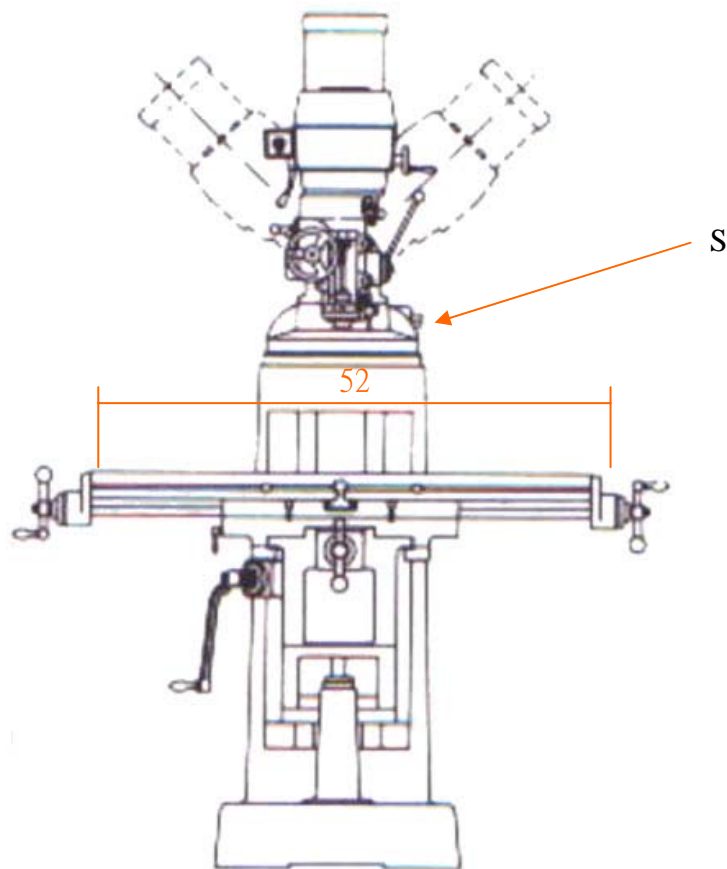


Fig6-5

6.2.1 Ram movement and swiveling (see Fig6-6):

(1). Ram movement:

- a. Loosen the two ram lock levers (A)
- b. Swivel the ram pinion handle (B), and the ram can be moved.
- c. When it moves to the desired position, lock up (A).

(2). Ram swiveling:

Loosen the four locking bolts (C). And force the cross srm to turn until the desired angle is obtained. lock up (C).

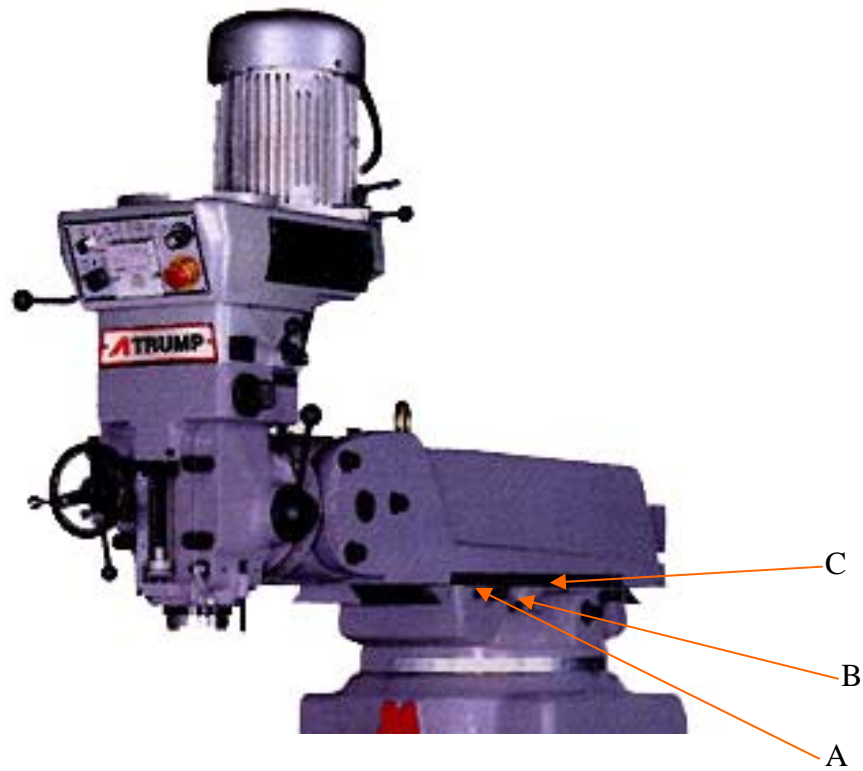


Fig6-6

- (1) Loosen the nut (D) of dial ring.
- (2) Turn the dial right (E) to zero position.
- (3) Lock the nut (d) of dial ring.

6.2.3 Setting of sliding surfaces of work table, saddle and knee:

All non-feed sliding surfaces shall be secured and set to prevent slipping and increase machine body's rigidity. The sliding surface setting levers (as shown in Fig6-8) are clockwise for setting and counterclockwise for release.

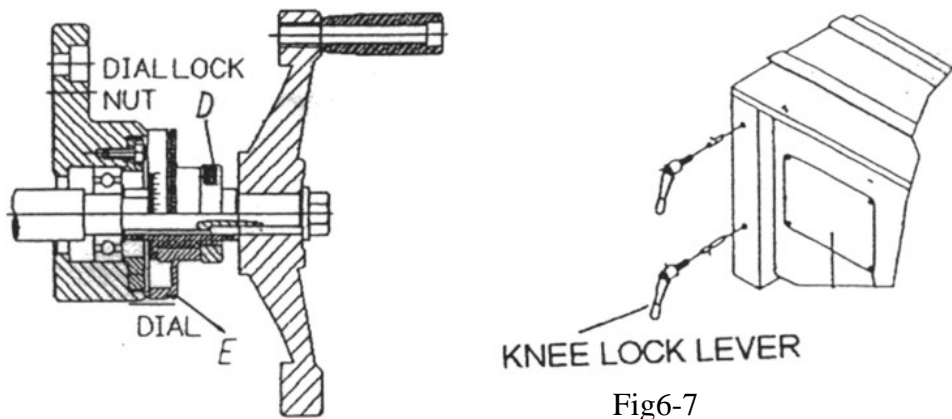


Fig6-7

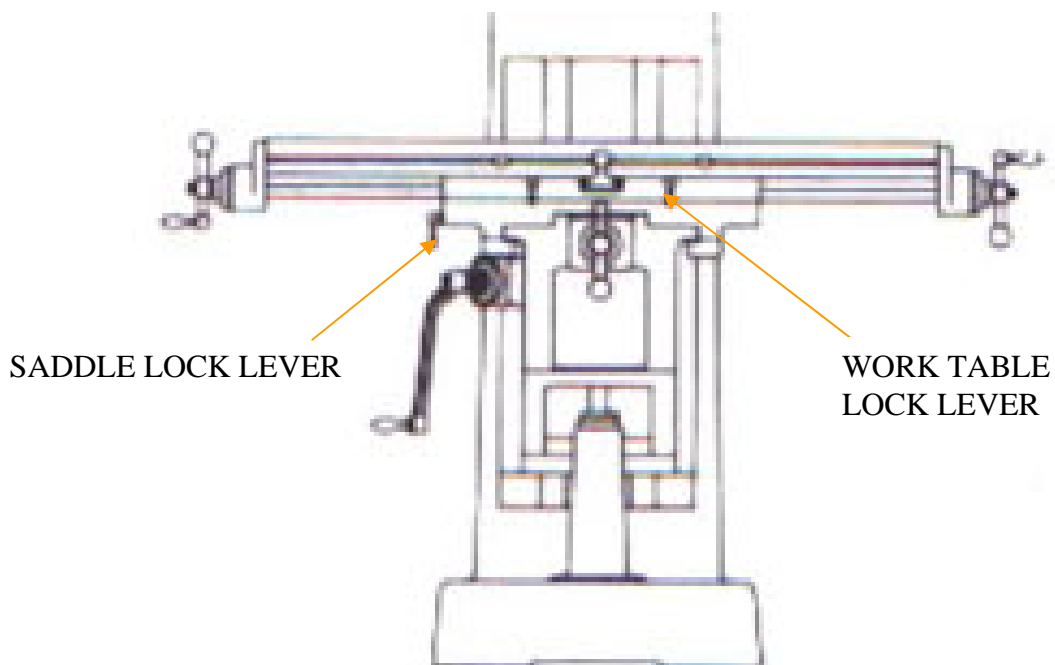


Fig6-8

7. TRANSPORT, UNPACKING AND FLOOR SPACE

7.1 METHODS OF TRANSPORT:

- (1) Machine net weight: approx. 1010KGS
- (2) Prior to unpacking, transport may be using a forklift (Fig7-1)
- (3) After packing, transport may be made by hoisting with a reinforced cable (Fig7-2)

REMARKS:

- (1) Always ensure capacity of equipment is adequate before attempting to lift.
- (2) When the machine is being hoisted, keep the personnel afar.
- (3) Hoisting by eye bolt should be used as less as possible.
- (4) To hoist the unpacked case by reinforced cable, the motion shall observe strictly the instruction appeared on the side of the wooden case.
- (5) Keep the work table and saddle in the proper positions so as to keep the machine balance.
- (6) Do not hoist the machine too high. The best position is to keep the machine base approximately 10 cm from the ground.
- (7) Do not allow the machine to wobble in hoisting.
- (8) Only an authorized forklift or crane operator is allowed to transport the machine.

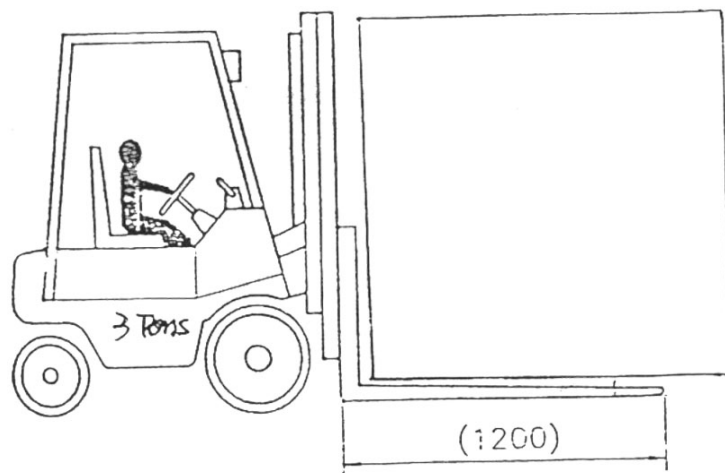


Fig7-1



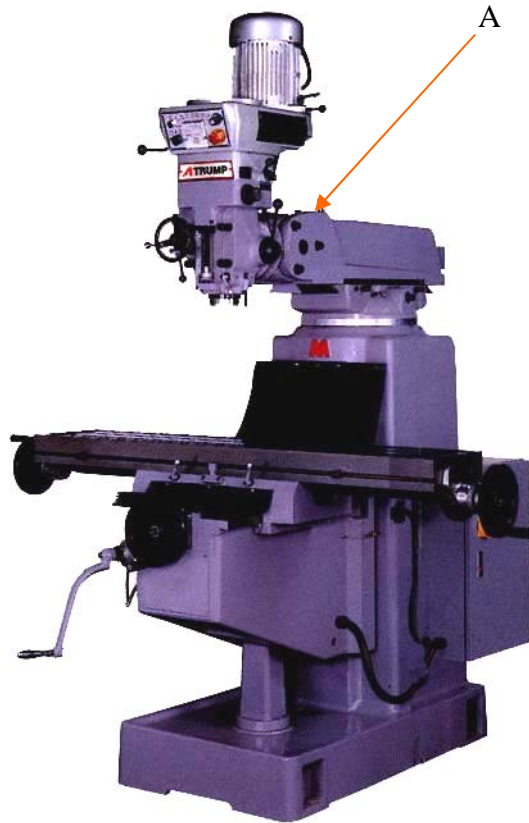
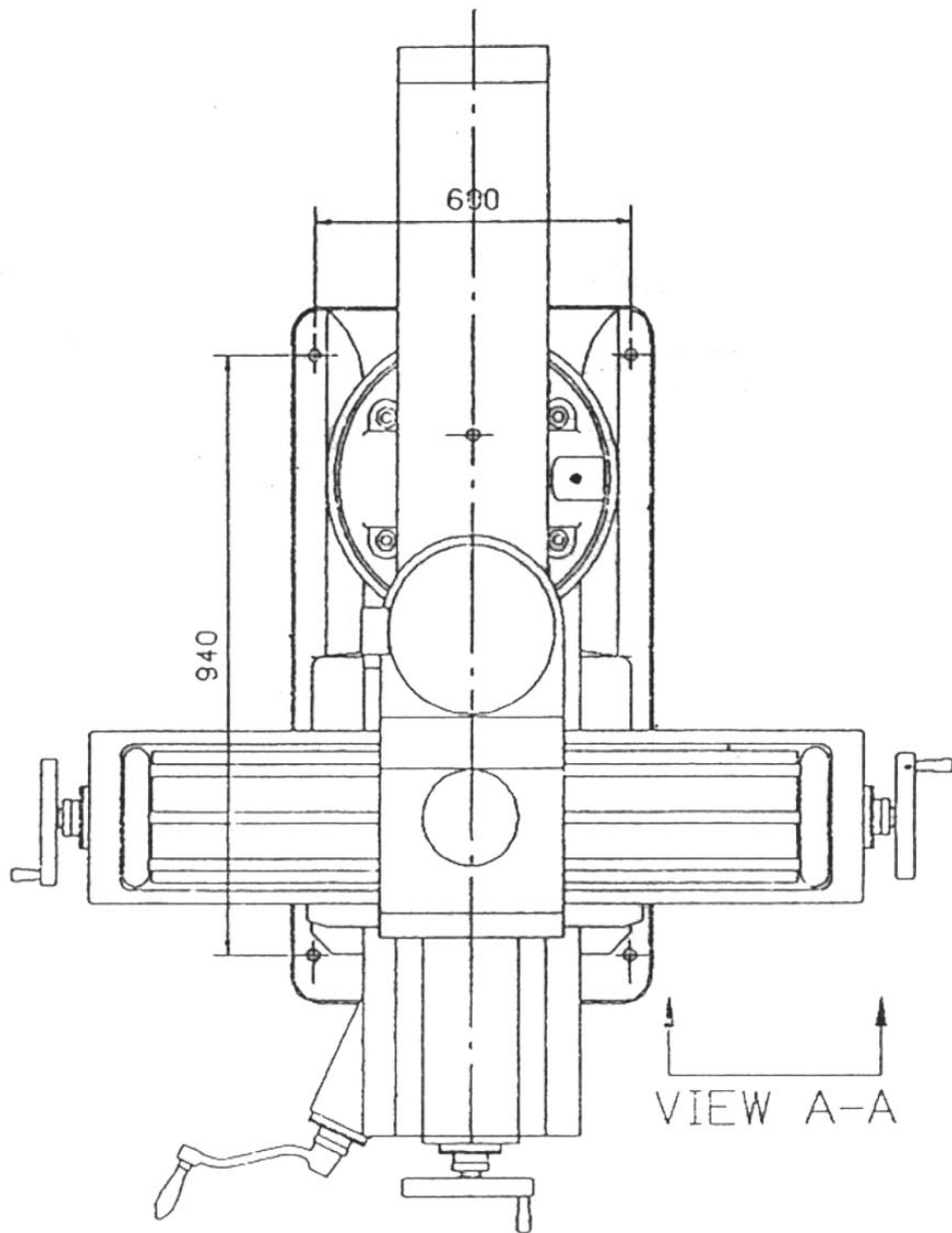


Fig7-2

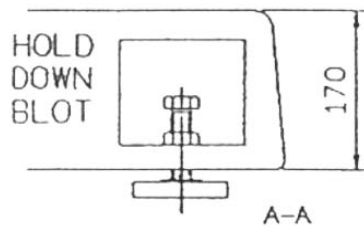
7.2 CAUTIONS FOR UNPACKING:

- a. To transport the machine, it is necessary to support the machine with the rated case or pallet to avoid moisture. In case of damage by moistening, please contact our agent or the transporter.
- b. After unpacking, check and see if all tools and accessories are intact, otherwise, please contact our agent.
- c. Restore the head stock to its normal position after unpacking.
- d. After unpacking, do not move the sliding surfaces and work table as long as the rustproof oil on them are not cleaned off and followed with the lubrication.
- e. Before the cleaning starts, the sliding protective pieces must be dismantled, and all sliding surface setting levers, loosened. When the rustproof oil is removed, proper amount of lubricant should be injected onto various sliding surfaces. Then move the sliding surfaces for final cleansing and lubrication.
- f. Do not remove the oil brushes in the process of cleaning.
- g. Do not use gasoline or any other inflammable oil cleaner.

7.3 FLOOR SPACE:



VIEW A-A



(BRACKETED) NUMBERS
ARE IN MILLIMETERS

Fig7-3

8. PRECISION ALIGNMENT

Precision of a machine dominates the processing quality. To produce the quality work piece, precision of each and every components is a top priority.

In order to maintain the primary machine precision following a long-term operation, regular precision alignment is indispensable to the upgrading of work quality. Beside, it may extend the machine service life. For details of components to be aligned and precision requirements, please refer to the table of precision inspection.

NOTE: To align the vertically of spindle to the table surface, is necessary to loosen the three machine head bolts and the four machine head nuts.

However, the bolts and nuts can not be loosened totally to prevent the components from a sudden tilting. lock up and as soon as the alignment is performed.

9.1 DISMANTLING OF MOTOR CAS SHOWING

- a. Cut off motor power source
- b. Loosen the two motor lock nut handle (A)
- c. Take off the two lock bolt handle (B) that locked the motor. The motor may be lifted up. Motor speed change belt are still kept inside the belt housing.
- d. Once the motor is replaced, just reverse the order of dismantling.

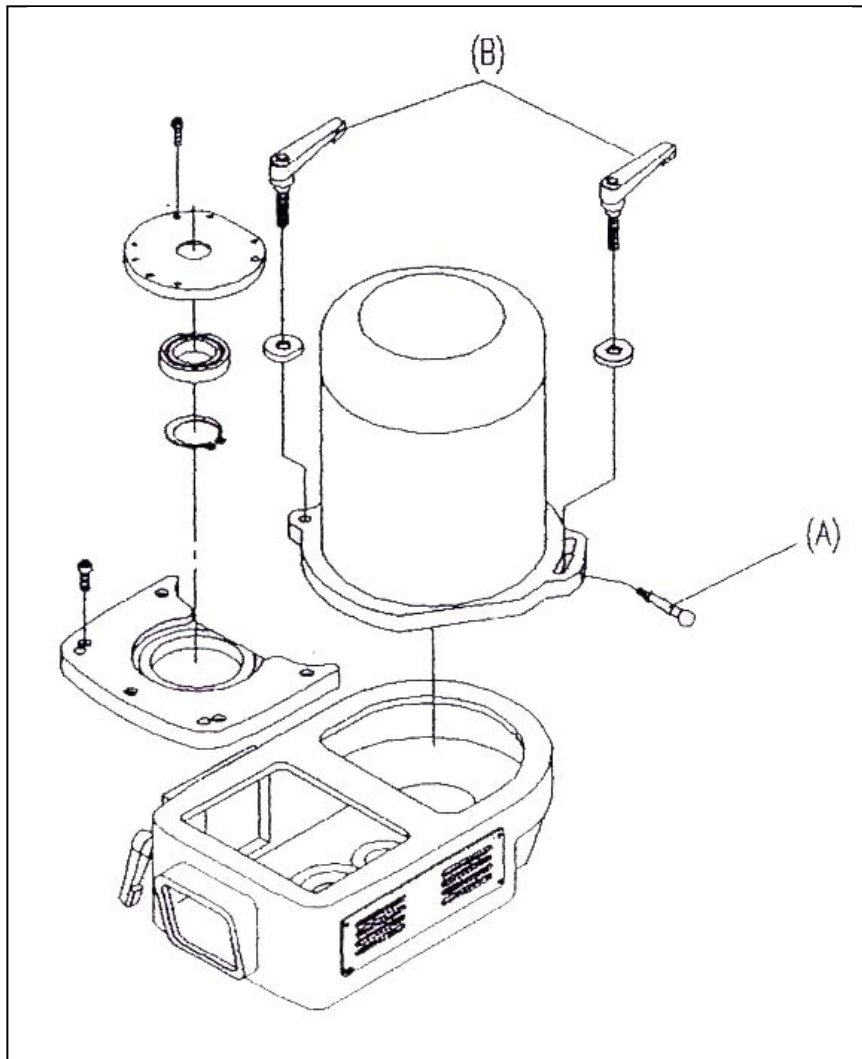


Fig.9-1

9-1

9.2 REPLACEMENT OF BELT

9.2.1 REPLACEMENT OF SPEED CHANGE BELT (L)

- a. Turn off the power source.
- b. Take off draw bar.
- c. Dismantle the four round screws (C) and take off the ventilator (D).
- d. Loosen the two lock bolt handle that locked the motor.
- e. Dismantle the three hexagonal socket head screws (G) and use two of them to lift the bearing housing (H).
- f. Dismantle the four hexagonal socket head screws (F) and lift the change housing (I).
- g. Take off the spacer (J) and gear (K)
- h. When the speed change belt is replaced accordingly, restore the machine by reversing the orders.

NOTE: The replaced speed change belt shall conform to that of our company specifications.

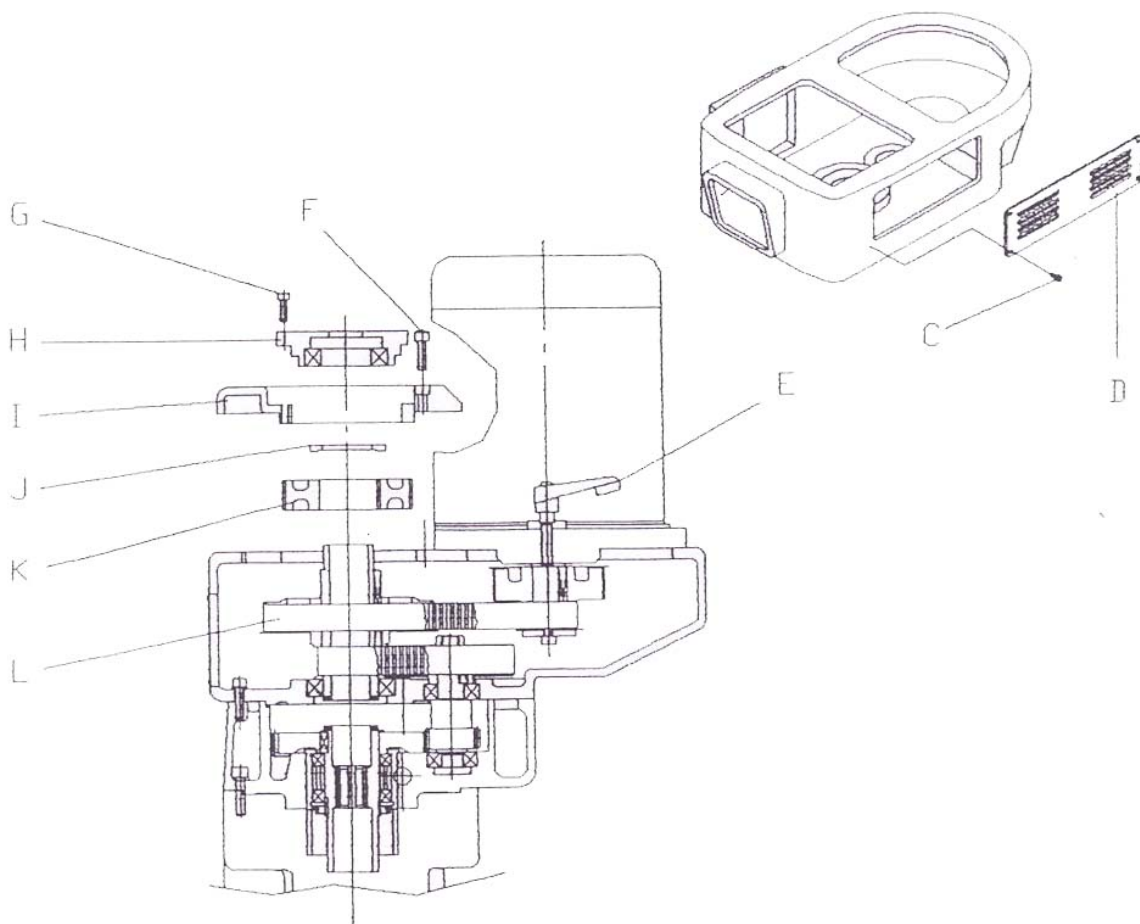


Fig.9-2

9-2

9.2.2 REPLACEMENT OF HI-LO SPEED CHANGE BELT (N)

- a. Refer to step A to H of replacement of speed change belt.

b. Lift the gear (M) to position (P).

c. When the speed change belt is replaced accordingly, restore the machine by reversing the orders.

NOTE: The replaced speed change belt shall conform to that of our company specification.

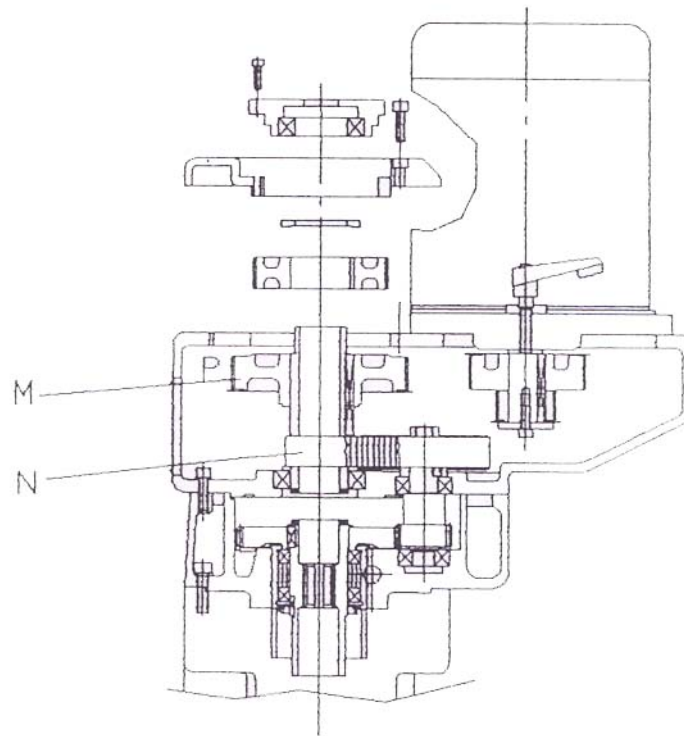


Fig.9-3

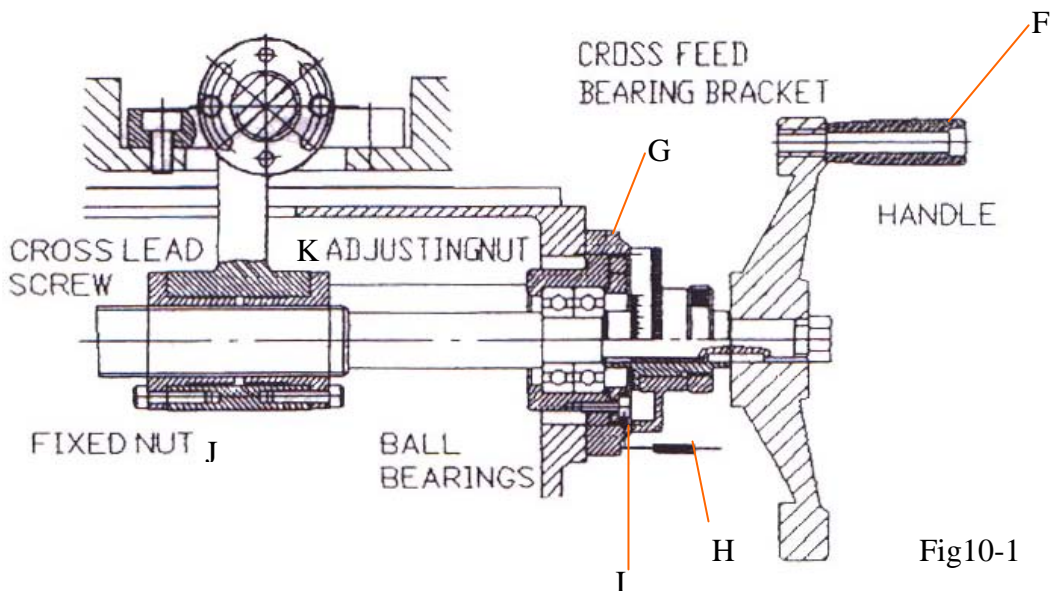
10. ADJUSTMENT

10.1 ADJUSTMENT OF BACKLASH OF LEADSCREW

After a certain period of time, a clearance is developed between the lead screw and its nut due to friction. Positioning accuracy will become impossible. Therefore, the nut must be adjusted so as to keep a proper tension between itself and the lead screw.

10.1.1 Adjustment of cross lead screw

- a. Turn counterclockwise the crank (F) and move the saddle seat to the foremost position of knee.
- b. Remove the two setting pins (H) of the front bearing bracket (G) and take off the four socket head cap screw (I).
- c. Support the cross feed bearing bracket (G) and turn clockwise the crank (F) so that the bracket will be separated from the knee with a certain distance between them (as shown in figure 30, the distance must be longer than the length of the adjusting tool).
- d. Insert the larger end of clearance adjusting tool into the knee and turn the locking nut (J) one round anticlockwise reverse the adjusting tool and insert the smaller end into the knee. turn the nut (K) clockwise and lock it up.
- e. Turn clockwise and anticlockwise the crank (F) and measure a clearance of approximately 3-4 graduations (0.06mm-0.08mm or 0.003"-0.004") on the dial. lock (J) consequently.
- f. Turning counterclockwise the lead screw into the knee until front bearing bracket seat gets in contact with the knee. Insert the two setting pins (H) and lock up tightly the cap screw (I) of the bearing bracket.



10.1.2 Adjustment of backlash of longitudinal leadscrew:

- a. Move the work table to the center of saddle.
- b. Insert the large end of backlash adjustment tool into the left side of saddle. Turn the locking nut (J) Counterclockwise one round. Reverse the end of adjustment tool and insert the small end into same position and turn the leadscrew adjusting nut (K) clockwise.
- c. turn the crank (F) slightly clockwise and counterclockwise and measure a clearance of approximately 3 to 4 graduations on the dial (0.6 - 0.8mm or 0.003"-0.004"), before the nut is locked up tightly again.

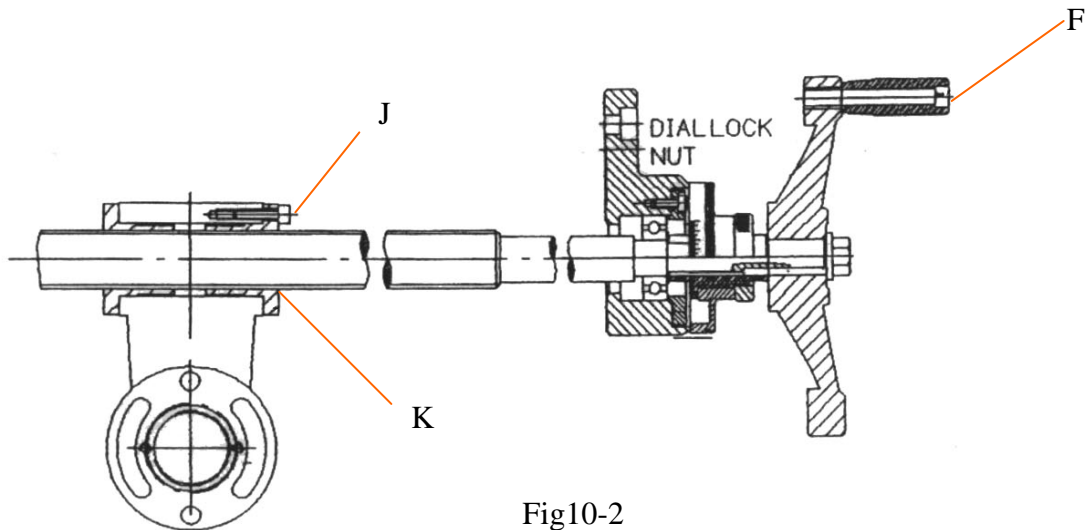


Fig10-2

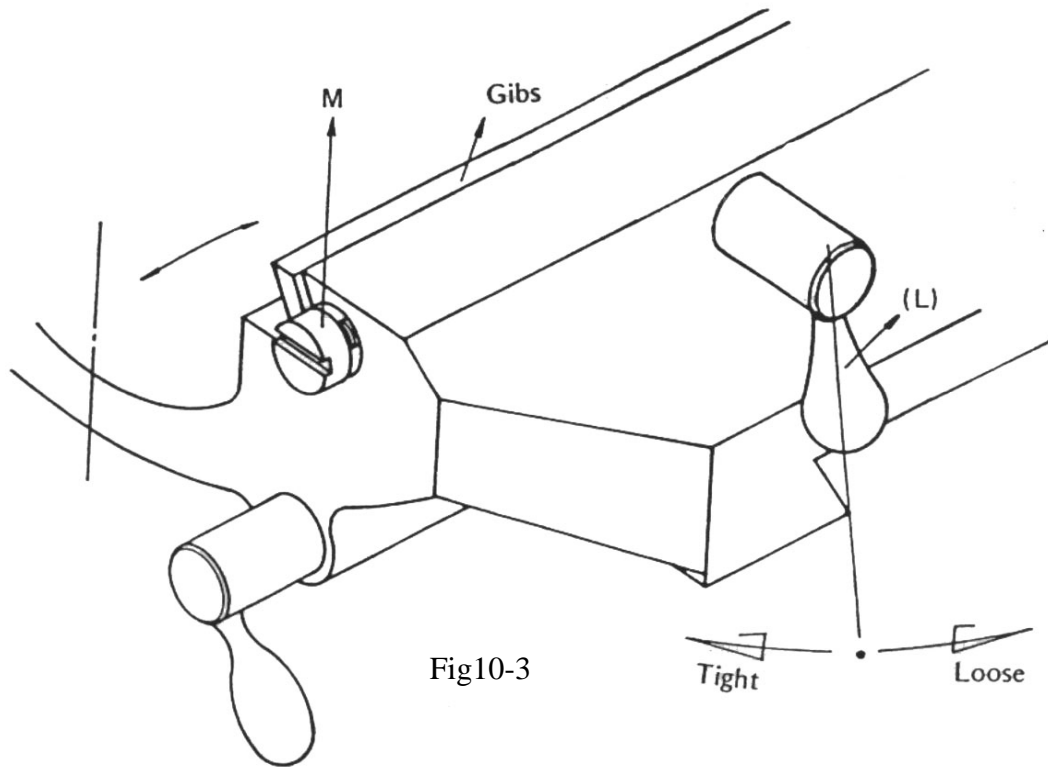
10.2 ADJUSTMENT OF PLAY BETWEEN GIBS

As a result of long-term operation between the sliding surface and gibs, the worn-out gibs will create a clearance. Therefore the gibs must be adjusted to upkeep the precision of sliding surfaces.

10.2.1 Adjustment of work table gibs (vide Fig.10-3):

The gibs are attached onto between the saddle seat and work table dovetail.

- a. Loosen the lock lever (L).
- b. Clean the slide way and add the lubricant.
- c. Use a screwdriver and adjust the gib screw (M) on both sides of saddle seat.
- d. Adjusting skill: if the turning of crank (F) (vide fig.10-3) is sensed too loose, loosen slightly the adjusting gib screw on the left side. Turn the crank again to see if it is in good tightness. otherwise, loosen the left adjusting gib screw and lock the right one tightly.Repeat the same motion until the work table sliding is satisfactory.
- e. Replace the excessive worn-out gib whenever necessary.



10.2.2 Adjustment of saddle gib (vide Fig.10-4):

Saddle gib is attached to the position between the left side of saddle and knee dovetail.

- a. Loosen the saddle lock bolt (A)
- b. Move the saddle to the front part of knee.
- c. Take off the wiper holder (B) of saddle.
- d. Clean the slide way and add the lubricant.
- e. Use a screw driver to adjust the gib screw (D) of the saddle.
- f. Employ the same methods to adjust the work table gib.
- g. lock up the wiper holder (B) on the saddle.

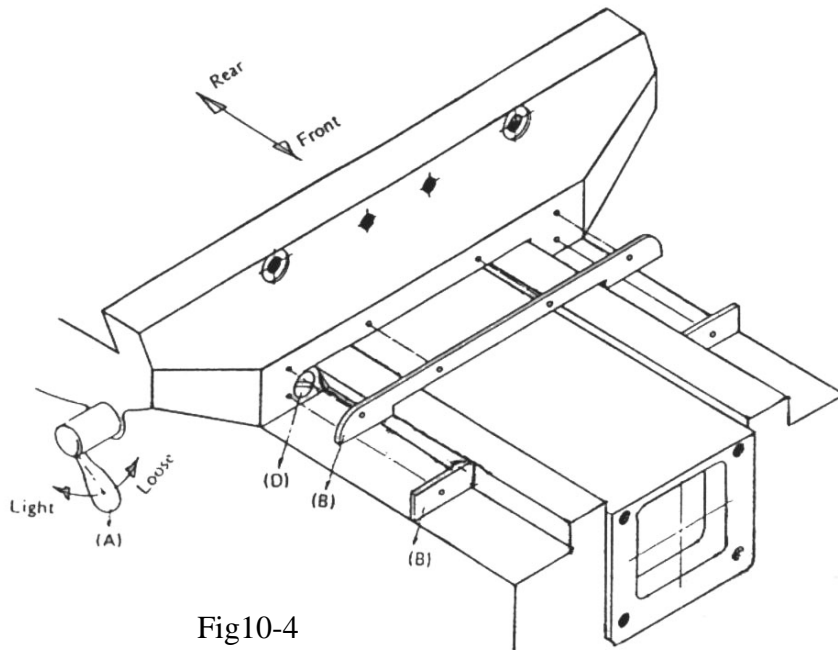


Fig10-4

10.2.3 Adjustment of knee gib (vide Fig.10-5):

The knee gib is attached to the position the left side of knee and column dovetail. The adjustment can be performed as follows:

- a. Loosen the knee clamp lever (G) (vide Fig.10-6).
- b. Take off the wiper holder (Q).
- c. Clean the slide way and add the lubricant.
- d. Raise the knee to its up most position.
- e. Use a screw driver to adjust the gib screw (R) of the knee.
- f. Employ the same methods to adjust the work table gib.
- g. Restore and lock up the wiper holder (Q).

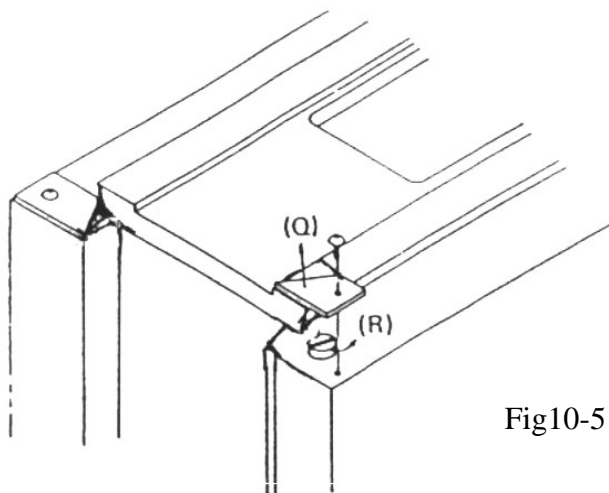


Fig10-5

10-4

10.2.4 ADJUSTMENT OF RAM GIB:

The ram gib is attached between the ram and turret dovetail. when the ram sliding is too tight or loose, adjustment may be effectuated by means of the bolt as follows:

- a. Loosen ram lock lever (C).
- b. Clean the slide way and add the lubricant.
- c. Turn the nut on the bolts of gib (I) .
- d. Use a screw driver to set or loosen gib bolt (I) until the ram moves smoothly.
- e. Lock up the nut tightly.

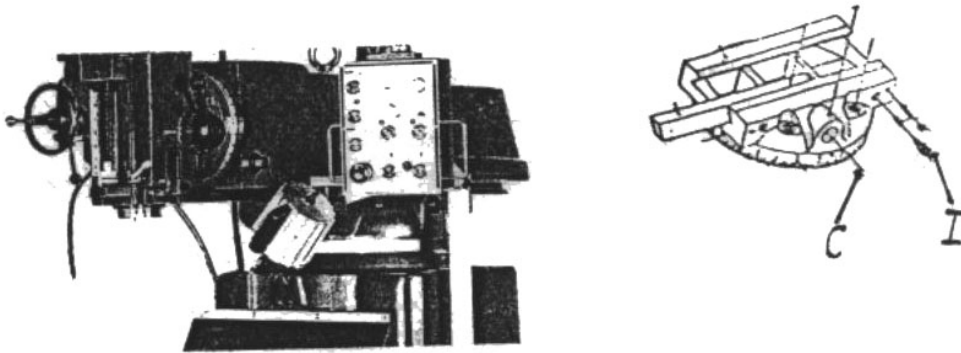


Fig10-6

10.2.5 Replacement of collect aligning screw (vide Fig.10-7):(available for R8 spindle only)

- a. Prior to replacement, use a marking pencil to draw a line on quill (A) and its nose piece (B).
- b. Loosen the setting screw (C) nose piece. Use a hook spanner to take off the nose piece (B).
- c. Use a hexagonal spanner of appropriate length to take off the collect aligning screw (D) for replacement.
- d. When the collect aligning screw is replaced, set the nose piece (B) tightly until it is positioned on the marked line.
- e. Set the set screw (C) of nose piece tightly.

NOTE: To replace the collect aligning screw, the collect must be placed inside the quill. Set the collect aligning screw (d) tightly so that it will contact the bottom of screw key way. Then turn it backward by approximately 1/4 round to keep a 0.25mm (0.01") play for easy installation and removal of the shank.

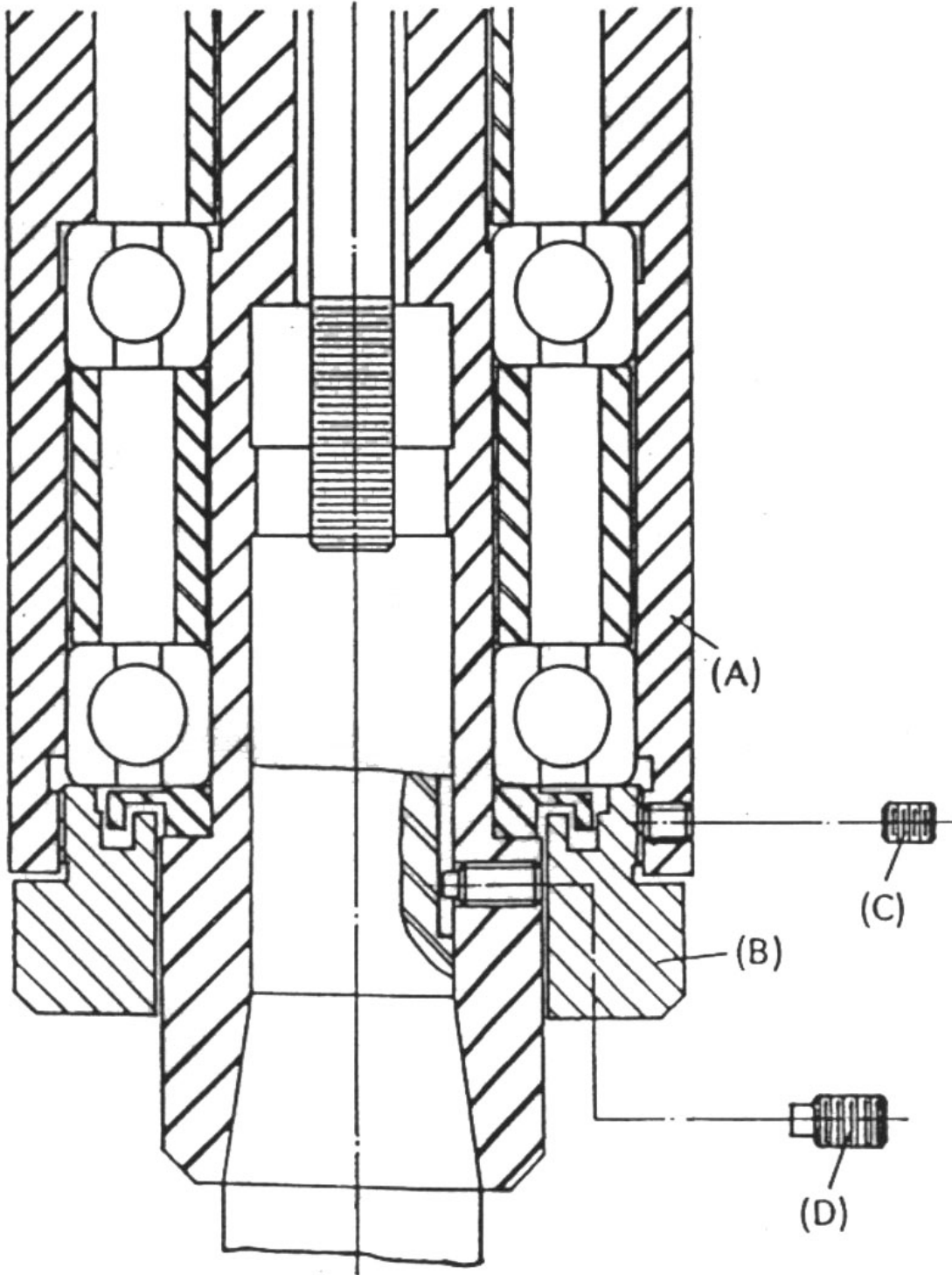


Fig10-7

"Maintenance is more important than repair; and repair is better than purchase".

Under long-term operations, if the machine has not been properly maintained and operated, its service life shall be greatly reduced. The work piece quality is therefore affected, and the efficiency, decreased. It is essential for an operator to know how to handle the machine and the concept of its maintenance and keep correctly.

11.1 DAILY MAINTENANCE:

- (1) Check and see if the oil level of hand crank pump is on the designated line.
- (2) The designated positions must be lubricated prior to operations .
- (3) Keep the machine idling for three to five minutes daily prior to operations.
- (4) At the close of each day, work table shall be cleaned and the unfinished work piece must be removed. a little bit of lubricant is recommended.
- (5) At the close of each day, all setting levers shall be loosened, and all sliding parts shall be move to the proper position. The cutter must be dismantled.
- (6) At the close of each day, the head stock must be restored to its normal position if it is tilted.

11.2 MONTHLY MAINTENANCE

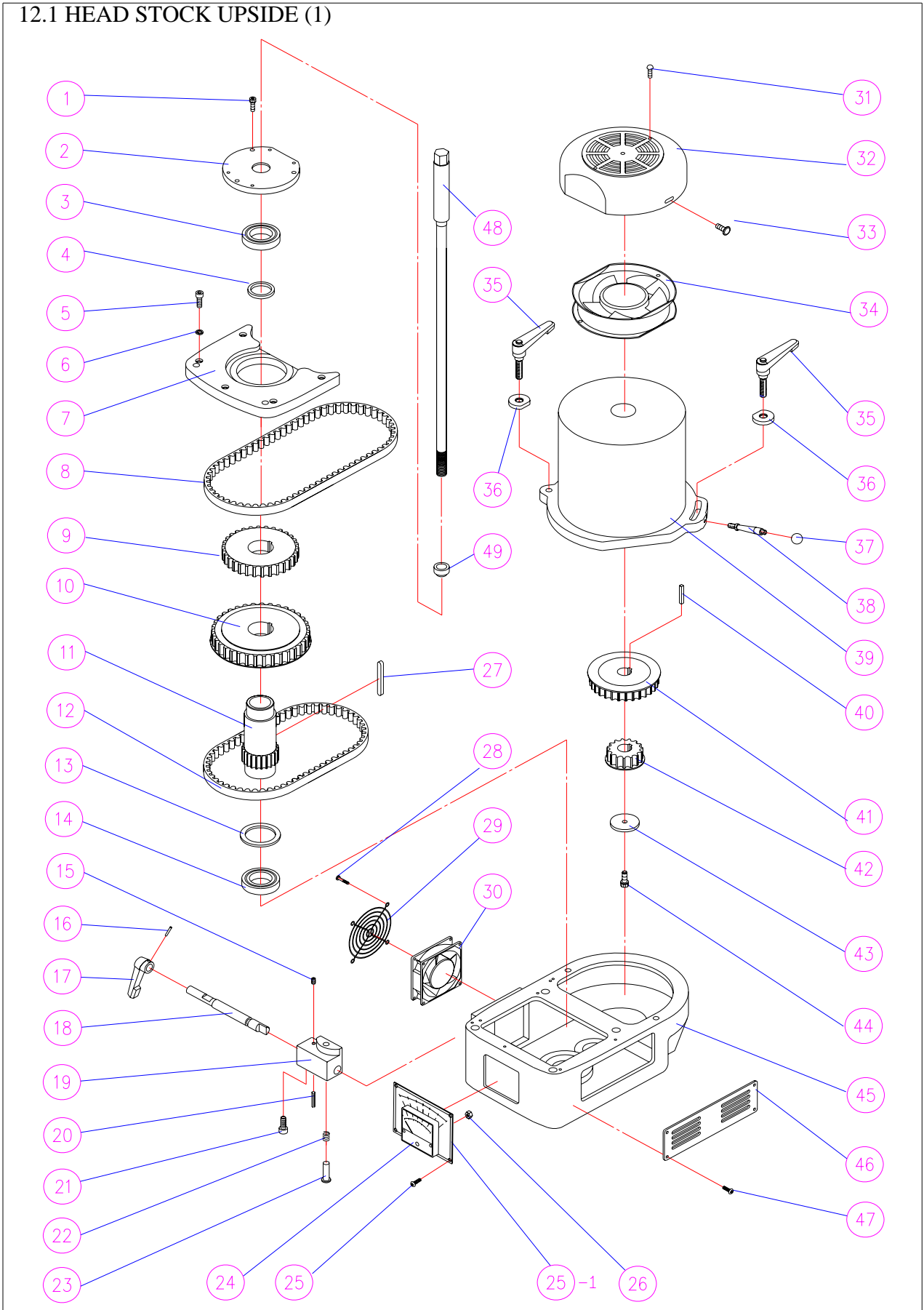
- (1) Check and see if all clamping rails of various sliding surfaces are normal.
- (2) Check and see if the backlash between lead screw and its nut is normal.
- (3) Check and see if the quill lock and that of each and every sliding surface is normal.

11.3 QUARTERLY MAINTENANCE:

- (1) Check and see if the brake functions and belt are normal.
- (2) Inspect the level of work table and erection status of head stock.
- (3) Test the machine again by the chart of test specs.
- (4) Replace whatever parts worn-out.

12. PARTS LIST:

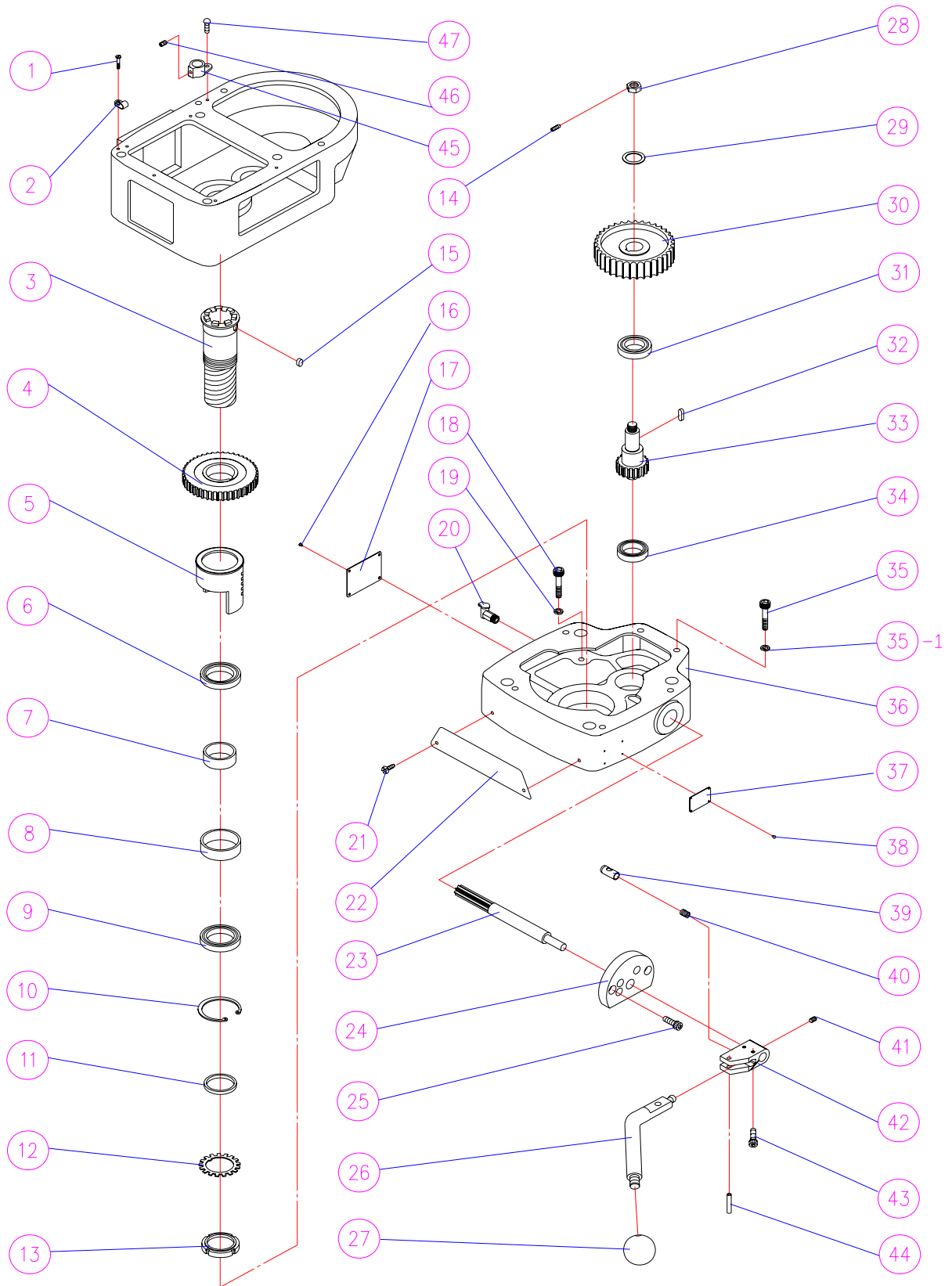
12.1 HEAD STOCK UPSIDE (1)



HEAD STOCK UPSIDE (1) PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
1.	SC-M6x20L	SOCKET CAP SCREW	4
2.	K6-K042-00	TOP BEARING CAP	1
3.	6009LLB	BALL BEARING	1
4.	K6-K043-00	SPACER	1
5.	SC-M6x30L	SOCKET CAP SCREW	5
6.	WF-Ø6	FLAT WASHER	4
7.	K6-K005-00	CHANGE HOUSING	1
8.	8M-25-720	HTD BELT	1
9.	K6-K054-00	GEAR 47T	1
10.	K6-K052-00	GEAR 62T	1
11.	K6-K045-00	SPINDLE GEAR HUB	1
12.	8M-25-480	HTD BELT	1
13.	K6-K047-00	SPACER	1
14.	6010LLB	BALL BEARING	1
15.	SS-M6x6L	SOCKET SET SCREW	1
16.	SP-Ø3x20L	SPRING RIN	1
17.	K6-K125-00	HANDLE	1
18.	K6-K128-00	SHIFT CRANK	1
19.	K6-K132-00	PINION BLOCK	1
20.	SP-Ø5x30L	SPRING PIN	2
21.	SC-M8x20L	SOCKET CAP SCREW	2
22.	SG-Ø13d2-25L	SPRING	1
23.	K6-K129-00	PLUNGER	1
24.	YM-8	FREQUENCY METER	1
25.	SR-M4x8L	ROUND HEAD SCREW	4
25-1.	PM-GE15	SPINDLE SPEED PLATE	1
26.	HN-M4	NUT	2
27.	KY-8x8x70L	KEY	1
28.	SR-M4x35L	HEAD ROUND SCREW	4
29.	F4-K008-00	AIR BLOWER NET	1
30.	SF23092A	AIR BLOWER	1
31.	SR-M6x10L	HEAD ROUND SCREW	2
32.	F4-K009-00	MOTOR AIR BLOWER COVER	1
33.	SR-M5x10L	HEAD ROUND SCREW	4
34.	GF172	AIR BLOWER	1
35.	K6-K026-00	LOCK BOLT	2
36.	K6-K027-00	WASHER	2
37.	BB-Ø1/4"	BRACELET BALL HANDLE	1
38.	K2-S006-00	MOTOR LOCK NUT HANDLE	1
39.	K6-K007-00	SPINDLE MOTOR	1
40.	KY-8x7x50L	KEY	1
41.	K6-K033-00	GEAR 40T	1
42.	K6-K036-00	GEAR 21T	1
43.	K6-K037-00	WASHER	1
44.	SC-M8x20L	SOCKET CAP SCREW	1
45.	K6-K001-00	BELT HOUSING ASSEMBLY	1
46.	K6-K164-00	VENTILATOR	1
47.	SR-M5x10L	ROUND HD SCREW	4
48.	K4-K147-00	DRAWBAR	1
49.	K4-K149-00	DRAWBAR WASHER	1

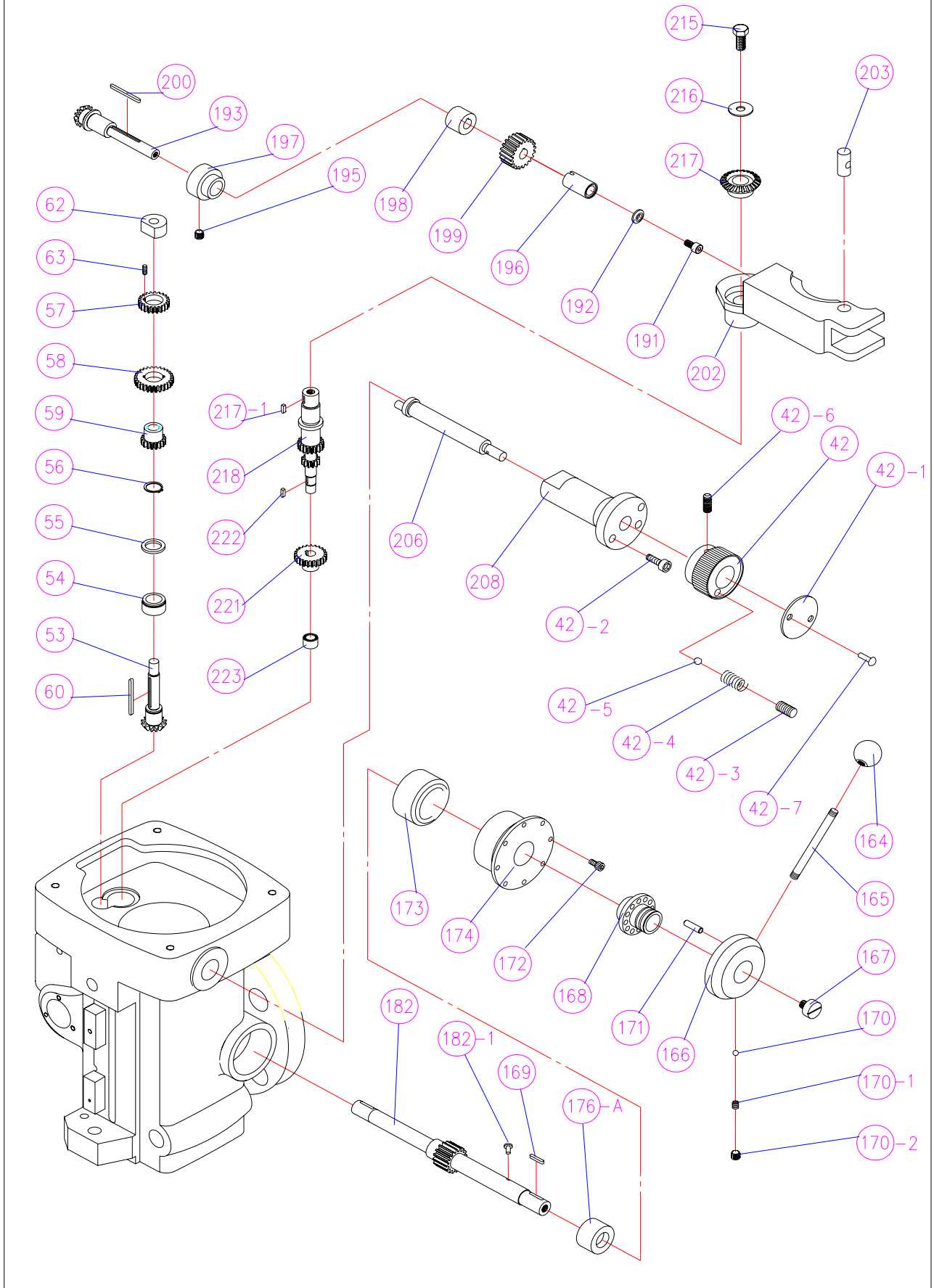
12.2 HEAD STOCK UPSIDE (2)



HEAD STOCK UPSIDE (2) PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
1.	SR-M5x6L	ROUND HEAD SCREW	1
2.	UC-1	CABLE CLAMPS	1
3.	K6-K101-00	SPINDLE GEAR HUB	1
4.	K6-K100-00	SPINDLE BULL GEAR ASSEMBLY	1
5.	K4-K105-00	BEARING SLEEVE	1
6.	6910LLB	BALL BEARING	1
7.	K4-K111-00	BEARING SPACER	1
8.	K4-K110-00	BEARING SPACER	1
9.	6910LLB	BALL BEARING	1
10.	R-72	SNAP RING	1
11.	K4-K103-01	WASHER	1
12.	AW-10	TOOTH WASHER	1
13.	K4-K104-00	LOCK NUT	1
14.	SS-M6x6L	SOCKET SET SCREW	1
15.	KY-8x8x18L	KEY	1
16.	RT-Ø2x5L	RIVER	4
17.	PM-GE13	PLATE	1
18.	SC-M10x35L	SOCKET CAP SCREW	4
19.	WS-Ø10	SPRING WASHER	4
20.	OC-1/8" PT	OIL CAP	1
21.	SR-M5x10L	ROUND HEAD SCREW	2
22.	PM-BT12	NAME PLATE	1
23.	K5-K136-00	BULL GEAR SHIFT PINION	1
24.	K6-K137-00	HI-LOW DETENT PLATE	1
25.	SC-M5x12L	SOCKET CAP SCREW	2
26.	K2-K145-00	HI-LOW SHIFT CRANK	1
27.	BB-Ø1/4"	BRACELET BALL HANDLE	1
28.	HN-5/8"	NUT	1
29.	WS-Ø5/8"	SPRING WASHER	1
30.	K6-K119-00	PULLEY	1
31.	6205ZZ	BALL BEARING	1
32.	KY-8x8x25L	KEY	1
33.	K6-K114-00	BULL GEAR PINION COUNTER SHAFT	1
34.	6204ZZ	BALL BEARING	1
35.	SC-M8x25L	SOCKET CAP SCREW	7
35-1.	WS-Ø8	SPRING WASHER	7
36.	F4-K003-01	GEAR HOUSING	1
37.	RT-PM-GE22	QUILL FEED WARNING PLATET	1
38.	RT-Ø2x5L	RIVET	4
39.	K2-K144-00	HI-LOW DETENT PLUNGER	1
40.	K2-K143-00	SPRING	1
41.	SS-M5x6L	SOCKET SET SCREW	1
42.	K2-K141-00	HI-LOW PINION BLOCK	1
43.	SC-M4x16L	SOCKET CAP SCREW	1
44.	SP-Ø4x16L	SPRING PIN	1
45.	K5-5054-00	CABLE CLAMPS	1
46.	SS-M6x8L	SOCKET SET SCREW	1
47.	SR-M5x10L	ROUND HEAD SCREW	1

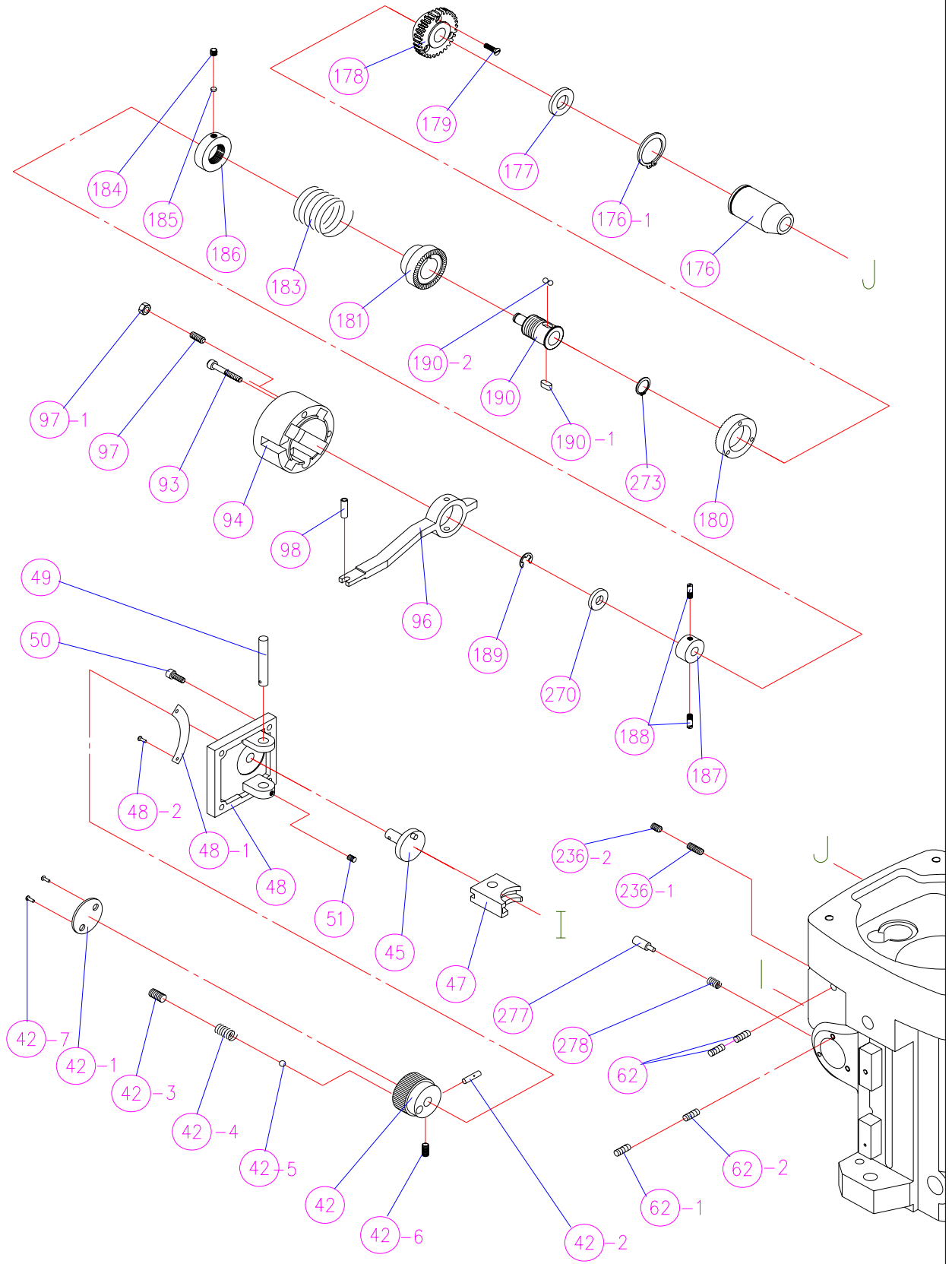
12.3 HEAD STOCK INFRASTRUCTURE (1)



HEAD STOCK INFRASTRUCTURE (1) PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
42.	K5-A042-00	SHIFTER CRANK	1
42-1.	K5-A042-10	PLATE	1
42-2.	SC-M5x12L	SOCKET CAP SCREW	1
42-3.	SS-M6x6L	SOCKET SET SCREW	1
42-4.	K5-A040-00	COMPRESSION SPRING	1
42-5.	BS-Ø6	STEEL BALL	1
42-6.	SS-M6x10L	SOCKET SET SCREW	1
42-7.	RT-Ø2x5L	RIVET	2
53.	K2-A053-00	FEED REVERSE BEVEL PINION	1
54.	K2-A054-00	BEVEL GEAR BEARING	1
55.	K2-A055-00	BEVEL GEAR THRUST WASHER	1
56.	S-16	SNAP RING	1
57.	K2-A057-00	FEED DRIVE CLUSTER GEAR (UPPER)	1
58.	K2-A058-00	FEED DRIVE CLUSTER GEAR (ENTER)	1
59.	K2-A059-00	FEED DRIVE CLUSTER GEAR	1
60.	KY-3x3x45L	KEY	1
62.	K2-A062-00	TRIP SHAFT BUSHING	1
63.	SS-M4x10L	SOCKET SET SCREW	1
164.	BB-3/8"	BLACK PLASTIC BALL HANDLE	1
165.	K2-A165-00	PINION SHAFT HUB HANDLE	1
166.	K2-A166-00	PINON SHAFT HUB	1
167.	K2-A167-00	PINION SHAFT HUB SCREW	1
168.	K2-A168-00	PINION SHAFT HUB SLEEVE	1
169.	KY-3x3x18L	KEY	1
170.	BS-Ø5	STEEL BALL	1
170-1.	K2-A170-A0	SPRING	1
170-2.	SS-5/16"x5/16"	SOCKET SET SCREW	1
171.	K2-A171-00	ROLL PIN	1
172.	K2-A172-00	SOCKET SET SCREW M5x10	2
173.	K4-A173-00	CLOCK SPRING	1
174.	K4-A174-00	SPRING COVER	1
176-A.	K4-A176-10	SHAFT BUSHING	1
182.	K4-A182-00	QUILL PINION SHAFT	1
182-1.	K2-A182-A0	PIN	1
191.	SR-M6x12L	ROUND HEAD SCREW	1
192.	K2-A192-00	BEVEL PINION WASHER	1
193.	K4-A193-00	FEED BEVEL PINION	1
195.	SS-M6x6L	SOCKET SET SCREW	1
196.	K4-A196-00	FEED WORM GEAR SHAFT SLEEVE	1
197.	K2-A197-00	WORM CRADLE BUSHING	1
198.	K4-A198-00	WORM GEAR SPACER	1
199.	K2-A199-00	FEED DRIVE WORM GEAR	1
200.	KY-3x3x25L	KEY	1
202.	K4-A202-00	WORM GEAR CRADLE	1
203.	K2-A203-00	FEED ENGAGE PIN	1
206.	K5-A206-00	WORM GEAR CRADLE THROW-OUT	1
208.	K5-A208-00	SHIFT SLEEVE	1
215.	SC-M8x16L	SOCKET CAP SCREW	1
215-1.	WS-Ø8	SPRING WASHER	1
216.	WF-Ø5/6"	FLAT WASHER	1
217.	K2-A217-00	FEED REVERSE BEVEL GEAR	1
217-1.	KY-3x3x10L	KEY	1
218.	K5-A218-00	FEED DRIVING GEAR	1
221.	K2-A221-00	FEED DRIVE GEAR	1
222.	KY-3x3x8L	KEY	1
223.	BA-66	TORRINGTON NEEDLE BEARING	1

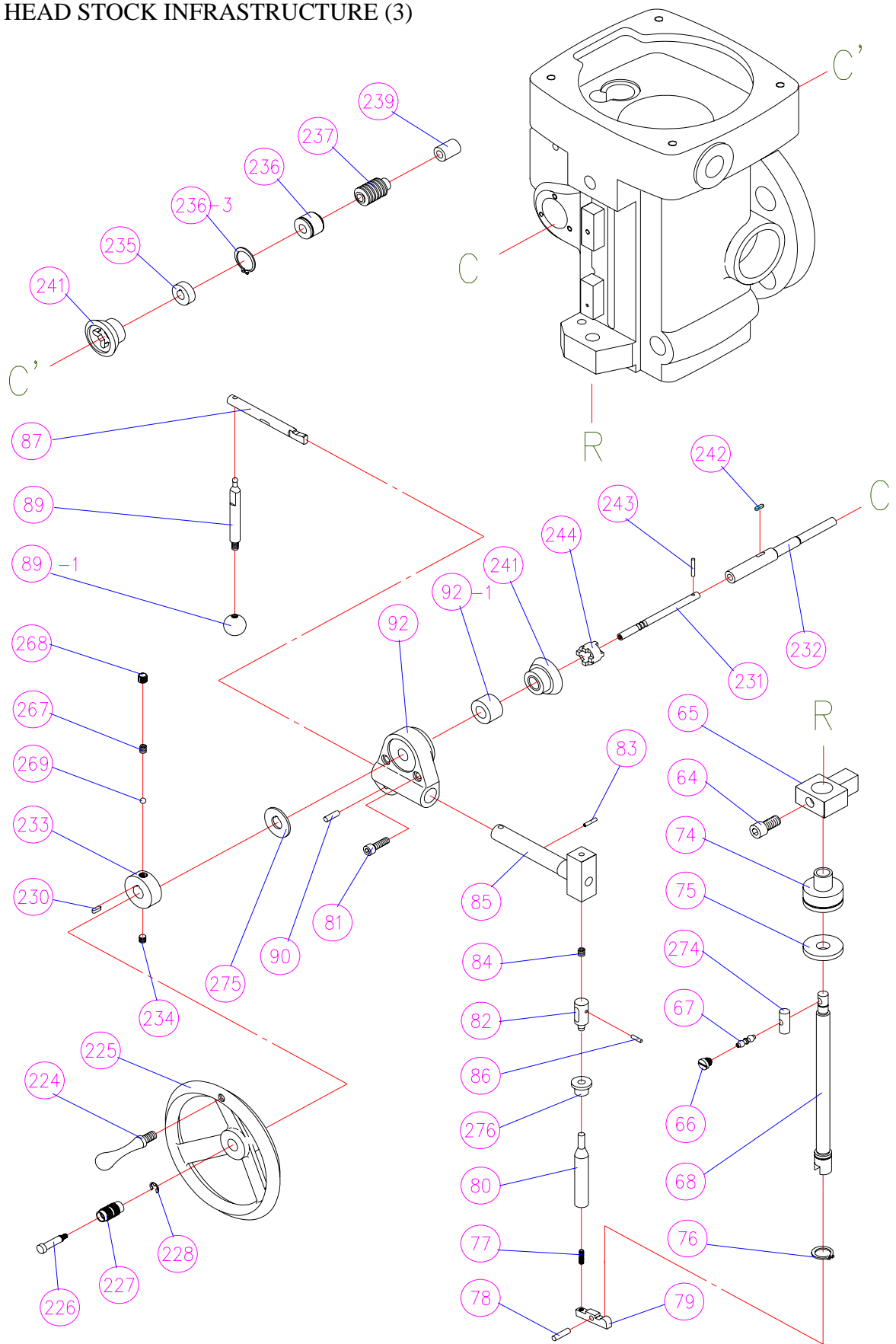
12.4 HEAD STOCK INFRASTRUCTURE (2)



HEAD STOCK INFRASTRUCTURE (2) PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
42.	K5-A042-00	SHIFT CRANK	2
42-1.	K5-A042-10	NAME PLATE	1
42-2.	SP-Ø3x30L	SPRING PIN	1
42-3.	SS-M6x6L	SOCKET SET SCREW	1
42-4.	K5-A042-40	COMPRESSION SPRING	1
42-5.	BS-Ø6	STEEL BALL	1
42-6.	SS-M6x6	SET SCREW	1
42-7.	RT-Ø2x5L	RIVET	2
45.	K5-A045-00	CLUSTER GEAR SHIFT CRANK	1
47.	K2-A047-00	FEED GEAR SHIFT FORK	1
48.	K4-A048-00	CLUSTER GEAR COVER	1
48-1.	PM-G26	QUILL FEED SPEED PLATE	1
48-2.	RT-Ø2x5L	RIVET	2
49.	K2-A049-00	FEED SHIFT ROD	1
50.	SC-M5x15L	SOCKET CAP SCREW	4
51.	SS-M5x5L	SOCKET SET SCREW	1
62.	SS-M6x6L	SOCKET SET SCREW	2
62-1.	SS-M6x6L	SOCKET SET SCREW	1
62-2.	SS-M6x8L	SOCKET SET SCREW	1
93.	SC-M5x35L	SOCKET CAP SCREW	2
94.	K2-A094-00	CLUTCH ARM COVER	1
96.	K5-A096-00	OVERLOAD CLUTCH TRIP	1
97.	1/4"x3/4"	SOCKET SET SCREW	1
97-1.	1/4"	NUT	1
98.	SP-Ø5x16L	SPRING PIN	1
176.	K2-A176-00	QUILL PINON SHAFT BUSHING	1
176-1.	K2-A176-A0	SNAP RING S-32	1
177.	K2-A177-00	PINION SHAFT WORM GEAR SPACER	1
178.	K2-A178-00	OVERLOAD CLUTCH WORM GEAR	1
179.	SR-M4x13L	ROUND HEAD SCREW	3
180.	K2-A180-00	OVERLOAD CLUTCH RING	1
181.	K2-A181-00	OVERLOAK CLUTCH	1
183.	K2-A183-00	SAFETY CLUTCH SPRING	1
184.	SS-M6x6L	SOCKET SET SCREW	1
185.	K2-A185-00	SPACET	1
186.	K2-A186-00	OVERLOAD CLUTCH ADJUSTABLE NUT	1
187.	K2-A187-00	OVERLOAD CLUTCH RING	1
188.	K2-A188-00	OVERLOAD CLUTCH RING PIN	2
189.	E-8	SNAP RING	1
190.	K2-A190-00	OVERLOAD CLUTCH SLEEVE	1
190-1.	KY-5x5x12	KEY	1
190-2.	SB-Ø6	STEEL BALL SET SCREW	2
236-1.	SS-M6x10L	SOCKET SET SCREW	1
236-2.	K2-A236-B0	A236 SOCKET SET SCREW	1
270.	K2-A270-00	WASHER	1
273.	S-15	SNAP RING	1
277.	K2-A277-00	PIN	1
278.	K2-A278-00	COMPRESSION SPRING	1

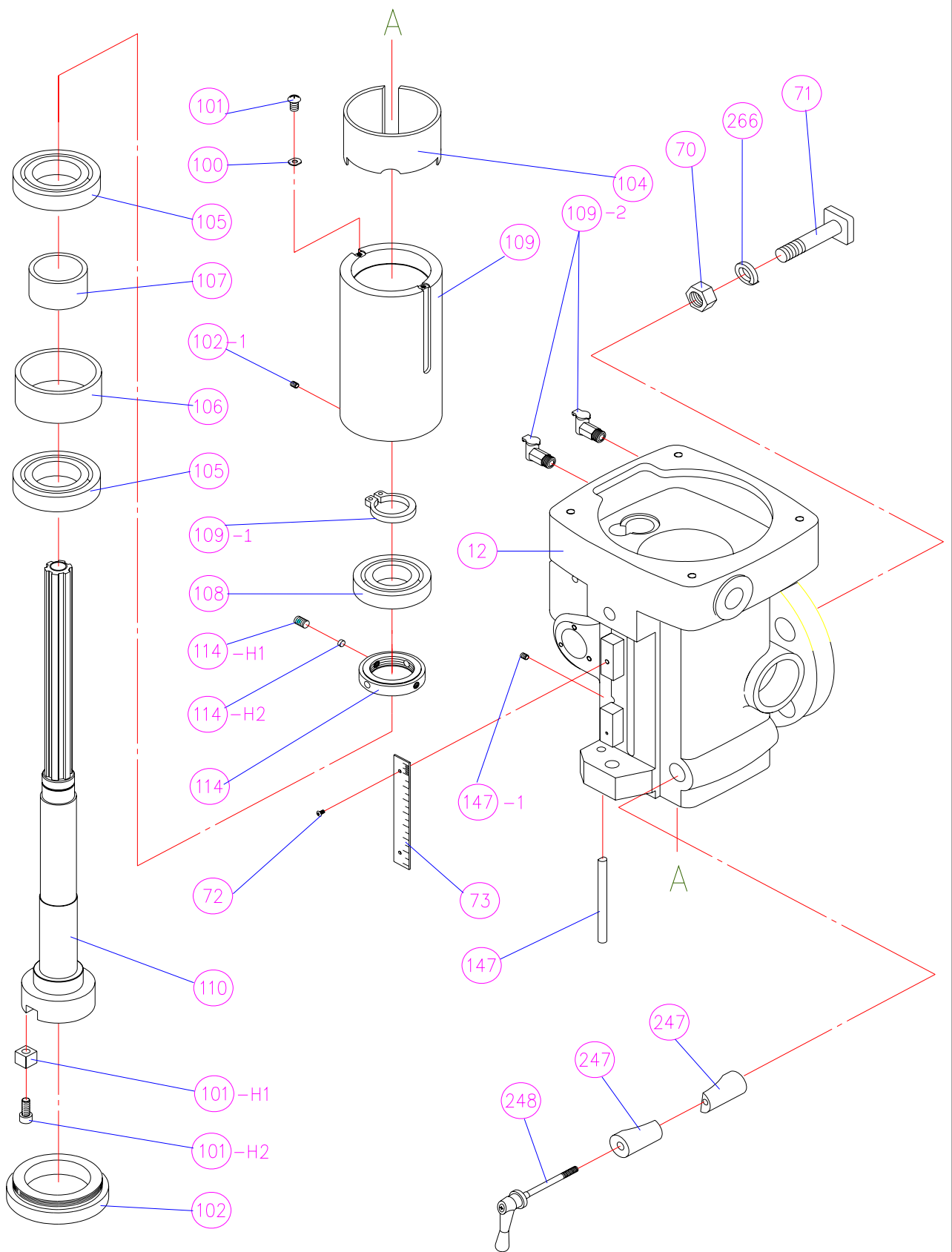
12.5 HEAD STOCK INFRASTRUCTURE (3)



HEAD STOCK INFRASTRUCTURE (3) PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
64.	SC-3/8"x3/4"	SOCKET CAP SCREW	1
65.	K6-A065-00	QUILL STOP KNOB	1
66.	K2-A066-00	REVERSE TRIP BALL LEVER SCREW	1
67.	K2-A067-00	REVERSE TRIP BALL LEVER	1
68.	K5-A068-I0	QUILL STOP MICRO SCREW (IMPERIAL)	1
74.	K2-A074-I0	DIAL WITH 50 GRADUATIONS (IMPERIAL)	1
	K2-A074-M0	DIAL WITH 50 GRADUATIONS (METRIC)	1
75.	K2-A075-I0	QUILL DIAL STOP NUT (IMPERIAL)	1
	K2-A075-M0	QUILL DIAL STOP NUT (METRIC)	1
76.	SE-16	SNAP RING	1
77.	SS-M4x16L	SOCKET SET SCREW	1
78.	K2-A078-00	TRIP LEVER PIN	1
79.	K2-A079-00	FEED TRIP LEVER	1
80.	K2-A080-00	FEED TRIP PLUNGER	1
81.	SC-M6x20L	SOCKET CAP SCREW	2
82.	K2-A082-00	GEARSHIFT PLUNGER	1
83.	SP- ϕ 3x15L	SPRING PIN	1
84.	K2-A084-00	COMPRESSION SPRING	1
85.	K4-A085-00	FEED TRIP PLUNGER BUSHING	1
86.	SP- ϕ 3x12L	SPRING PIN	1
87.	K4-A087-00	CAM ROD	1
89.	K2-A089-00	TRIP HANDLE	1
89-1.	BB- ϕ 1/4"	BLACK PLASTIC BALL HANDLE	1
90.	K2-A090-00	TRIP HANDLE PIN	1
92.	K2-A092-00	FEED TRIP BRACKET	1
92-1.	K5-A092-00	WASHER	1
224.	K2-A224-00	HANDWHEEL HANDLE	1
225.	K2-A225-00	HANDWHEEL	1
226.	K2-A226-00	FEED REVERSE KNOB STUD	1
227.	K2-A227-00	REVERSE KNOB	1
228.	ES-5	SNAP RING	1
230.	KY-3x3x10L	KEY	1
231.	K6-A231-01	REVERSE CLUTCH ROD	1
232.	K6-A232-00	FEED WORM SHAFT	1
233.	K2-A233-00	HANDWHEEL CLUTCH	1
234.	SS-M6x6L	SOCKET SET SCREW	1
235.	K5-A235-00	FEED WORM SHAFT THRUST WASHER	1
236.	K2-A236-00	WORM SHAFT BUSHING	1
236-3.	S-22	SNAP RING	1
237.	K2-A237-00	WORM	1
239.	K2-A239-00	BUSHING	1
241.	K2-A241-00	FEED REVERSE BEVEL GEAR	2
242.	KY-3x3x15L	KEY	1
243.	SP- ϕ 3x20L	PIN	1
244.	K2-A244-00	FEED REVERSE CLUTCH	1
267.	K2-A267-00	COMPRESSION SPRING	1
268.	SS-M8x6L	SOCKET SET SCREW	1
269.	BS- ϕ 3/16"	STEEL BALL	1
274.	K2-A274-00	PIN	1
275.	K2-A275-00	WASHER	2
276.	K2-A276-00	TRIP PLUNGER BUSHING	1

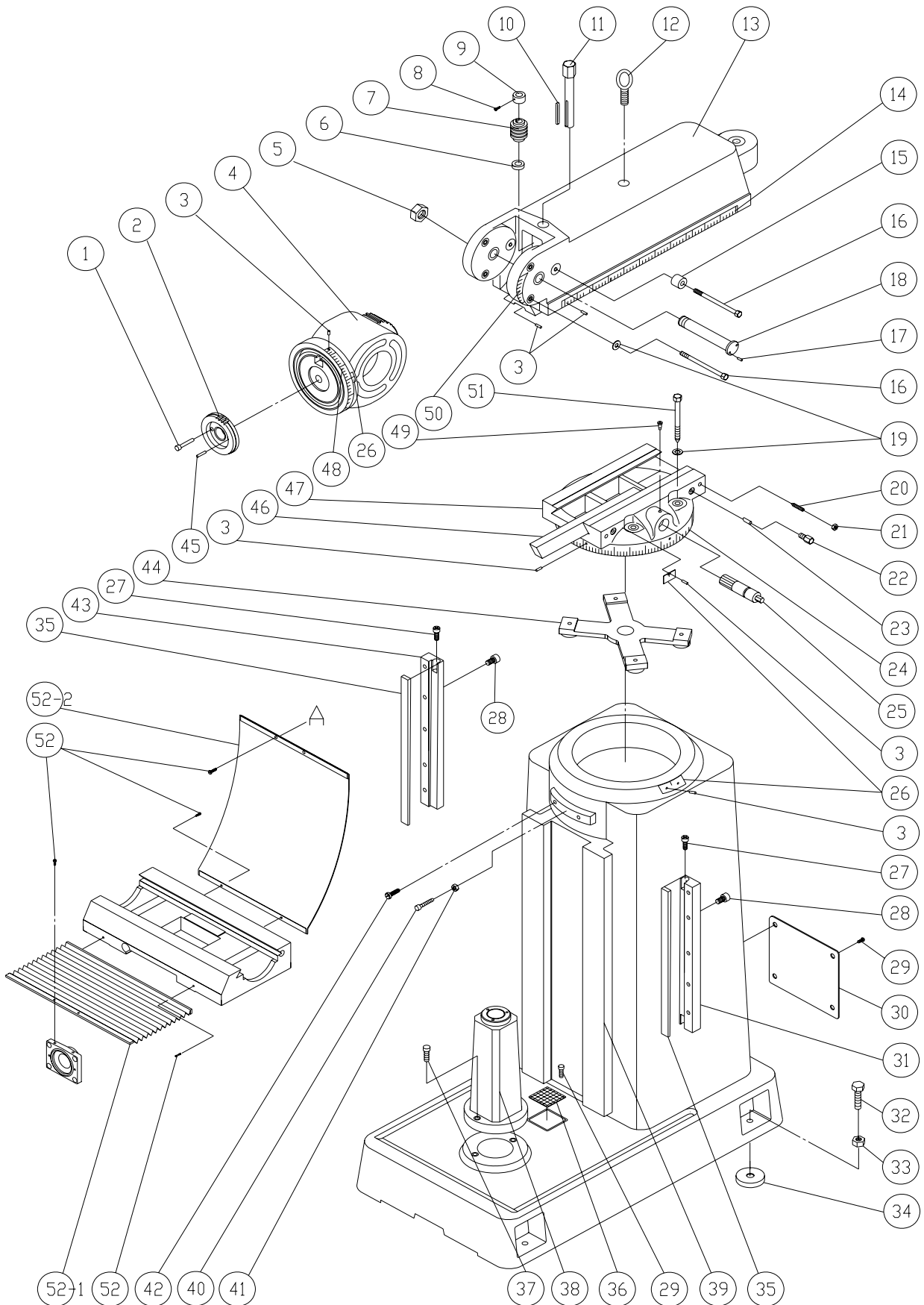
12.6 HEAD STOCK INFRASTRUCTURE (4)



HEAD STOCK INFRASTRUCTURE (4) PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
12.	F4-A012-01	QUILL HOUSING	1
70.	K4-A070-00	HEX. NUT	4
71.	K5-A071-00	5/8"x65L T-BOLT	4
72.	SR-M3x4L	ROUND HEAD SCREW	2
73.	K5-A073-I0	MICROMETER SCALE (IMPERIAL)	1
	K5-A073-M0	MICROMETER SCALE (METRIC)	1
100.	K2-A100-00	WASHER	2
101.	SR-M5x8L	ROUND HEAD SCREW	2
101-H1.	K2-A110-A0	LOCK BLOCK	2
101-H2.	SC-5/16"x5/8"	SOCKET CAP SCREW	2
102.	K4-A102-00	#7207 NOSE-PIECE #40,R8	1
102-1.	SC-M5x6L	SET SCREW	1
104.	K4-A104-00	OIL BAFFLE	1
105.	7010B	BEARING	2
106.	K4-A106-00	BUSHING	1
107.	K4-A107-00	BUSHING	1
108.	6208	BEARING	1
109.	C4-A109-00	SLEEVE	1
109-1.	SE-40	SNAP RING	1
109-2.	OC-1/8" PT	OIL CAP	1
110.	C4-A110-00	SPINDLE	1
114.	K4-A114-00	LOCK NUT	1
114-H1.	SS-M8x8L	SET SCREW	1
114-H2.	K2-A185-00	PRESSURE WASHER	1
147.	K2-B147-00	STOP PIN	1
147-1.	SS-M6x8L	SOCKET SET SCREW	1
247.	K5-A247-00	QUILL LOCK SLEEVE	1
248.	K4-A248-00	QUILL LOCK BOLT	1
266.	K4-A266-00	WASHER	4

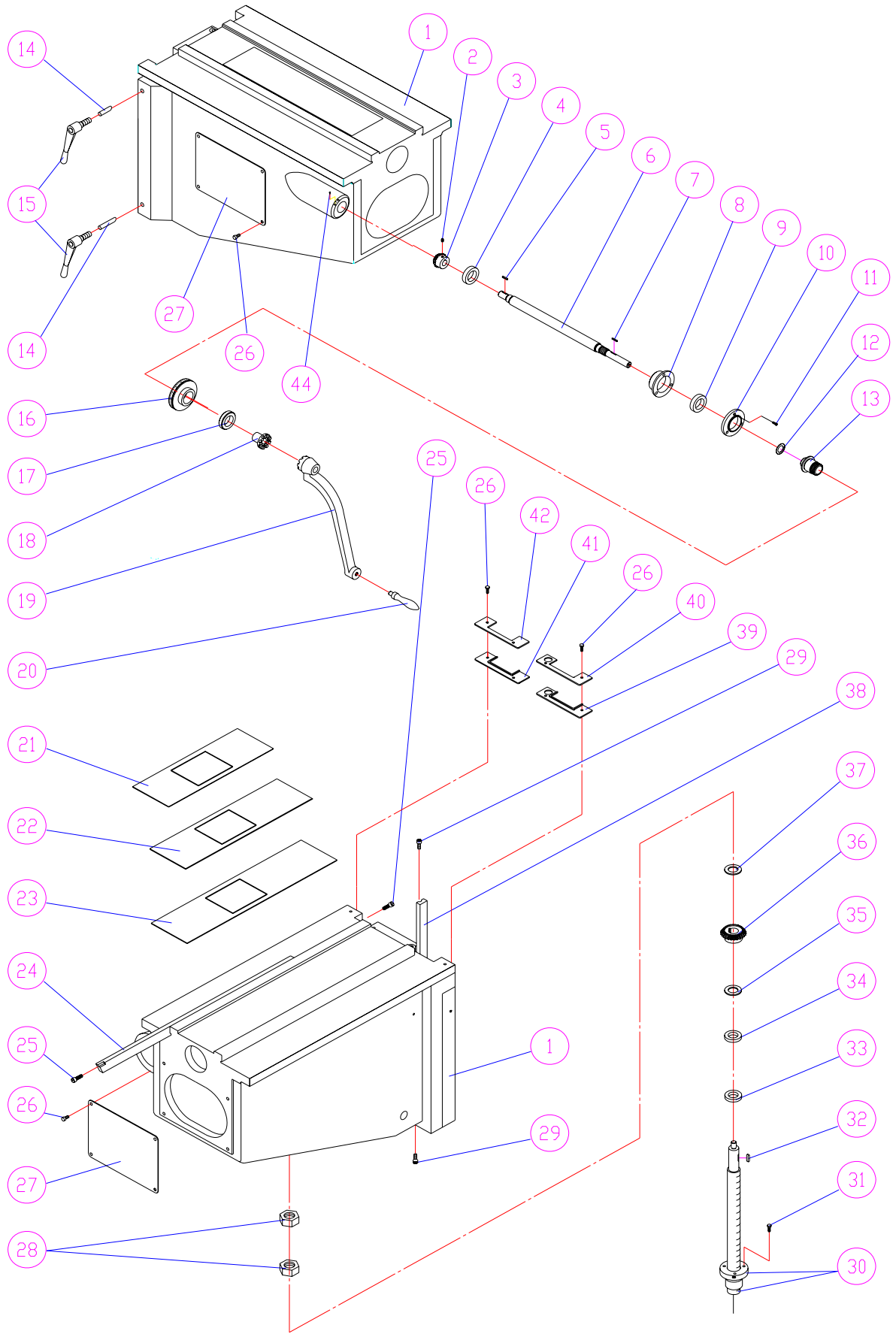
12.7 COLUMN ASSEMBLY



COLUMN ASSEMBLY PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
01.	M8x25	SOCKET CAP SCREW	2
02.	K2-C001-00	QUILL HOUSING ADJ. GEAR	1
03.		RIVET	18
04.	K4-C002-00	RAM ADAPTOR	1
05.	K2-C004-10	1 1/8" - 12UNF NUT	1
06.	K2-C012-00	WORM WASHER	1
07.	K2-C006-00	VERTICAL ADJUSTING WORM	1
08.	M6x8	SET SCREW	1
09.	K2-C007-00	SPACING RING	1
10.	5x5x50	KET	1
11.	K4-C008-00	VERTICAL ADJUSTING WORM SHAFT	1
12.	K2-C011-00	HOOK BOLT	1
13.	K4-C010-00	RAM	1
14.	PM-DE05-00	RAM PLATE	1
15.	K4-C010-10	SPACING RING	1
16.	K4-C019-00	ADAPTOR LOCK BOLT	3
17.	Ø5x14	ROLL PIN	2
18.	K4-C017-10	ADAPTOR PIVOT PIN	1
19.	K5-C018-00	WASHERR PIVOT PIN	6
20.	K5-C110-00	SCREW	2
21.	3/8" NC	HEX NUT	2
22.	K2-C107-00	RAM LOCKING BOLT	2
23.	K2-C046-90	LOCK PLUNGER	2
24.	PM-DE07-00	TURRET SCALE	1
25.	K2-C120-00	RAM PINION	1
26.	PM-DE12-00	ZERO PLATE	3
27.	K2-C041-00	GIB ADJ - SCREW	4
28.	M12x40	SOCKET CAP SCREW	10
29.	M5x6	OVAL HEAD SCREW	6
30.	K5-C135-00	COOLANT PUMP COVER	1
31.	K5-C113-00	SLIDING RAIL	1
32.	3/4"x3"	HEX. BOLD	4
33.	3/4" - NUC	NUT	4
34.	K5-C099-00	ADJUST BRACK	4
35.	K5-C055-00	KNEE / COLUMN GIB	2
36.	K2-C130-00	INFITRATION NET	1
37.	M10x30	SOCKET CAP SCREW	2
38.	K5-C103-00	PEDESTAL	1
39.	K5-C098-01	COLUMN	1
40.	M8x30	SOCKET CAP SCREW	1
41.	M8	NUT	1
42.	M5x10	OVAL HEAD SCREW	2
43.	K5-C112-00	SLIDING RAIL	1
44.	K5-C118-00	SLIDER	1
45.	Ø6x24	ROLL PIN	2
46.	K5-C111-00	RAM / TURRET GIB	1
47.	K5-C124-00	TURRET	1
48.	PM-DE09-00	ANGLE SCALE	1
49.	K2-C128-00	RAM PINION SET SCREW	1
50.	PM-DE15-00	ADAPTOR SCALE	1
51.	K5-C127-00	LOCK BOLT	4
52.	M5x12	ROUND HEAD SCREW	2
52-1.	K5-C100-01	WAVE WAY COVER	1
52-2.	K5-C101-00	FLAT WAY COVER	1

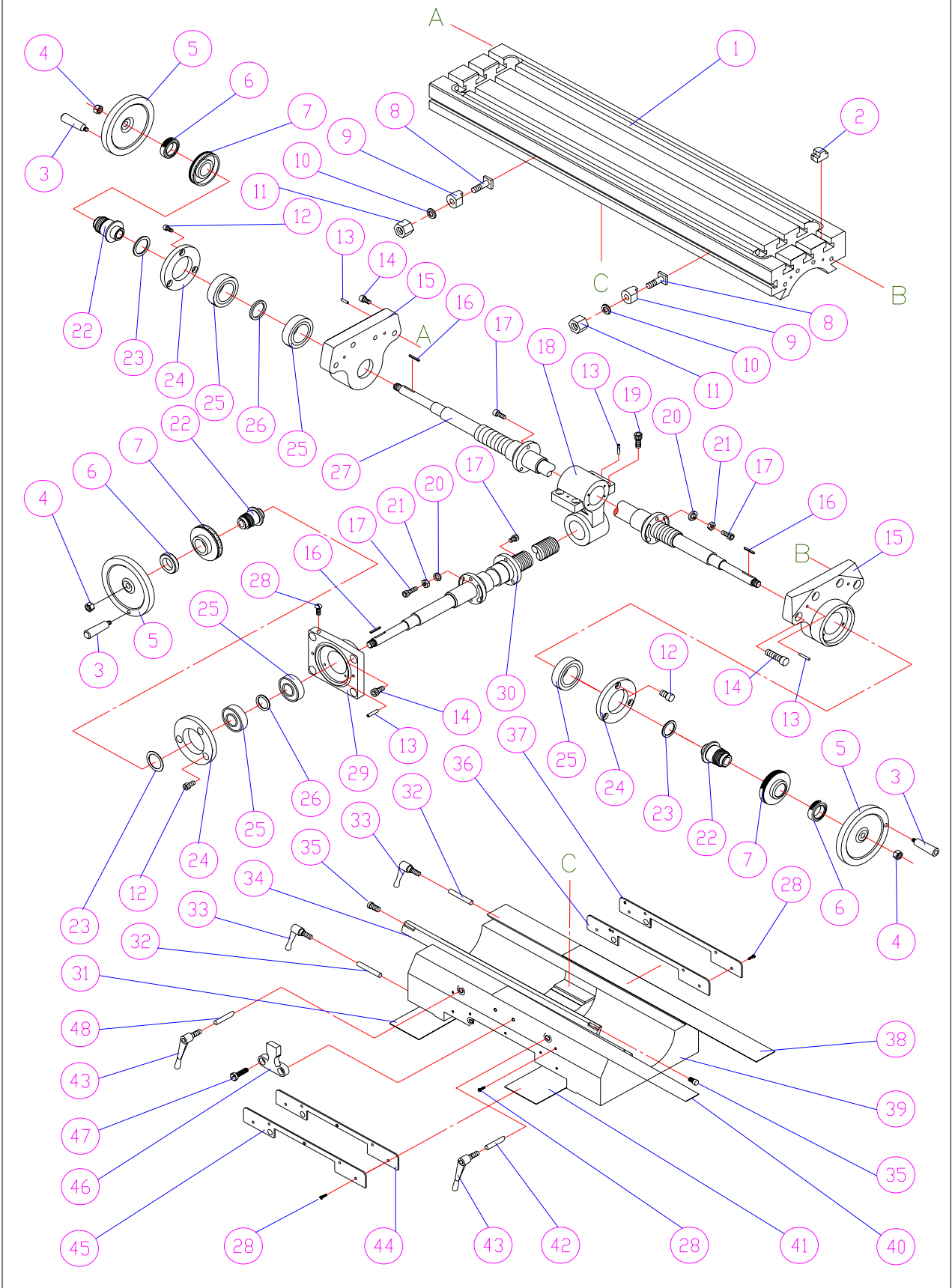
12.8 KNEE ASSEMBLY



KNEE ASSEMBLY PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
01.	K5-C062-01	KNEE	1
02.	M6x8	OVAL HEAD SCREW	2
03.	K5-C096-00	BEVEL PINION	1
04.	6204ZZ	GREASE SEALED BEARING	2
05.	4x4x18	KEY	1
06.	K5-C094-01	ELEVATING SHAFT	1
07.	3x3x18	KEY	1
08.	K2-C092-00	BEARING CAP	1
09.	6204Z	BALL BEARING	1
10.	K2-C090-00	BEARING RETAINER RING	1
11.	M6x12	SOCKET CAP SCREW	3
12.	K2-C089-00	WASHER	1
13.	K2-C086-00	DIAL NUT	1
14.	K5-C065-00	KNEE LOCK SHAFT	2
15.	K5-C040-00	SADDLE LOCK BOLT HANDLE	3
16.	K2-C087-I0	DIAL (INCH)	1
	K2-C087-M0	DIAL (METRIC)	1
17.	K2-C088-00	DIAL HOLDER	1
18.	K2-C085-00	GEAR SHAFT CLUTCH INSERT	1
19.	K5-C084-00	ELEVATING CRANK	1
20.	K5-C083-00	HANDLE	1
21.	K5-C059-01	CHIP GUARD-UPPER	1
22.	K5-C060-01	CHIP GUARD-MIDDLE	1
23.	K5-C061-01	CHIP GUARD-LOWER	1
24.	K5-C049-00	SADDLE/KNEE GIB	1
25.	K2-C041-00	GIB ADJ-SCREW	2
26.	M5x6	ROUND HEAD SCREW	12
27.	K5-C134-00	KNEE COVER	2
28.	1/2" NF	HEX. NUT	2
29.	K2-C041-A0	GIB ADJ-SCREW	2
30.	K5-C106-I0	ELEVATING SCREW ASSEMBLY (INCH)	1
	K5-C106-M0	ELEVATING SCREW ASSEMBLY (METRIC)	1
31.	M6x16	SOCKET CAP SCREW	3
32.	5x5x22	KEY	1
33.	51305	SEALED BALL BEARING	1
34.	6205Z	SEALED BALL BEARING	1
35.	K2-C079-00	SPACING WASHER	1
36.	K5-C077-00	BEVEL GEAR	1
37.	K2-C076-00	WASHER	1
38.	K5-C055-00	KNEE/COLUMN GIB	1
39.	K5-C058-00	KNEE WIPER FELT	1
40.	K5-C057-00	KNEE WIPER HOLDER	1
41.	K5-C054-00	KNEE WIPER FELT	1
42.	K5-C053-00	KNEE WIPER HOLDER	1
44.		RIVET	2

12.9 TABLE, SADDLE ASSEMBLY



TABLE, SADDLE ASSEMBLY PARTS LIST

NO.	PART NO.	DESCRIPTION	QTY
01.	K5-C023-20	11"X52" TABLE	1
	K5-C023-80	11"X58" TABLE	1
02.	K2-D029-00	CHOCK PLUG	6
03.	K5-D002-00	HANDLE	3
04.	1/2" - 20 NF	JAM NUT	3
05.	K5-D026-00	HENDLE WHEEL	3
06.	K2-D003-00	DIAL LOCK NUT	3
07.	K2-D004-I 0	DIAL (INCH)	3
	K2-D004-M0	DIAL (METRIC)	3
08.	K2-C031-00	STOP PIECE T - BOLT	2
09.	K2-C032-00	TABLE STOP PIECE	2
10.	K2-C033-00	WASHER	2
11.	3/8" NC	HEX. NUT	2
12.	M6x12	HOLLOW HEAD CAP SCREW	9
13.	Ø5x24	SPRING PIN	4
14.	M10x20	HOLLOW HEAD CAP SCREW	8
15.	K2-D011-00	BEARING BRACKEK	2
16.	3x3x25	KEY	2
17.	M6x16	SOCKET CAP SCREW	10
18.	K2-D022-00	FEED NUT BRACRET	1
19.	M10x20	SOCKET CAP SCREW	4
20.	1/4"xØ16	WASHER	4
21.	Ø6	SPRING WASHER	4
22.	K2-D005-00	DIAL HOLDER	3
23.	EK-1112-A0	WASHER	3
24.	K2-C090-00	BEARING RETAINER RING	3
25.	6204Z	BALL BEARING	5
26.	K2-D018-00	ADJUSTING WASHER	3
27.	K5-D017-I2	LONGITUDINAL FEED SCREW (INCH, TABLE 52")	1
	K5-D017-M2	LONGITUDINAL FEED SCREW (METRIC, TABLE 52")	1
	K5-D017-I8	LONGITUDINAL FEED SCREW (INCH, TABLE 58")	1
	K5-D017-M8	LONGITUDINAL FEED SCREW (METRIC, TABLE 58")	1
28.	M5x10	ROUND HEAD SCREW	16
29.	K2-D028-00	CROSS FEED BEARING BRACKET	1
30.	K5-D030-I1	CROSS FEED SCREW (INCH)	1
	K5-D030-M1	CROSS FEED SCREW (METRIC)	1
31.	K5-C138-00	TURCITE LINING	1
32.	K5-C039-00	LOCK PLUNGER	1
33.	K5-C040-00	SADDLE LOCK BOLT HANDLE	2
34.	K5-C043-00	SADDLE/TABLE GIB	1
35.	K2-C041-00	GIB ADJ - SCREW	2
36.	K5-C044-10	FELT WIPERS	1
37.	K5-C050-10	SADDLE WIPER HOLDER	1
38.	K5-C137-00	TURCIET LINING	1
39.	K5-C052-00	SADDLE	1
40.	K5-C136-00	TURCIET LINING	1
41.	K5-C139-00	TURCIET LINING	1
42.	K2-C046-60	LOCK PLUNGER	1
43.	K5-C037-00	LOCK BOLT HANDLE	2
44.	K5-C044-00	FELT WIPERS	1
45.	K5-C050-00	SADDLE WIPER HOLDER	1
46.	K5-C042-00	TABLE STOP BRACKET	2
47.	M8x12	SOCKET CAP SCREW	1
48.	K5-C046-50	LOCK PLUNGER	1

12.10 SPINDLE GUARD (CE OPTION)

